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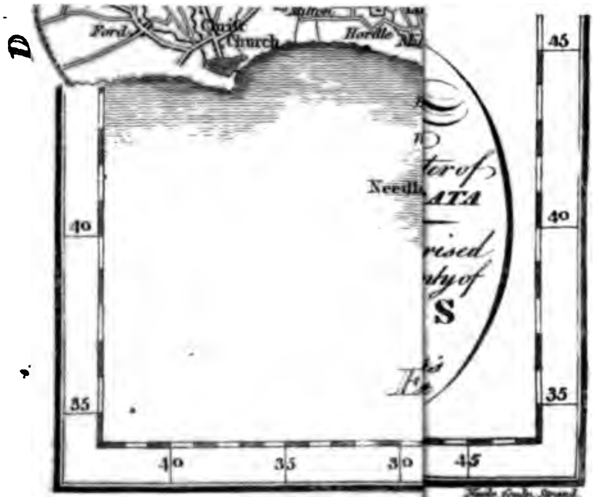
GENERAL VIEW



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GENERAL VIEW

OF THE

AGRICULTURE

OF

HAMPSHIRE,

INCLUDING THE

ISLE OF WIGHT.

DRAWN UP FOR

THE BOARD OF AGRICULTURE
AND INTERNAL IMPROVEMENT.

BY CHARLES VANCOUVER.

EXPERIENTIA PRÆSTANTIOR ARTE.

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THE desire that has been generally expressed, to have the AGRICULTURAL SURVEYS of the KINGDOM reprinted, with the additional Communications which have been received since the ORIGINAL REPORTS were circulated, has induced the BOARD OF AGRICULTURE to come to a resolution to reprint such as appear on the whole fit for publication.

It is proper at the same time to add, that the Board does not consider itself responsible for every statement contained in the Reports thus reprinted, and that it will thankfully acknowledge any additional information which may still be communicated.

N. B. *Letters to the Board, may be addressed to Sir* JOHN SINCLAIR, *Bart. M. P. the President, No.* 32, *Sackville-Street, Piccadilly, London.*

ERRATA.

Page 4, line 1, *for* 1,512,468, *read* $1,512\frac{468}{640}$.
——— 2, *for* 968,149,300, *read* $968,149\frac{3}{10}$.
— 15, — 6, *for* aceration, *read* accretion.
— 17, — 20, *for* arid, *read* acid.
— — — 29, *after* chisselly, *read* when dry.
— 32, — 24, *for* loam, *read* low.
— 49, — 12, *for* flying, *read* plying.
— 54, — 25, *after* apply, *read* as.
— 61, — 5 from the bottom, *for* acre, *read* annum.
— 66, — 8, *for* absorbing, *read* conducting.
— 77, — 10, *for* Kingsclose, *read* Kingsclere.
— 131, — 20, *after* dung, *read* are laid on.
— 180, — 1, *after* has, *read* been.
— 187, — 3 from the bottom, *for* lb, *read* shillings.
— 189, — 6, *after* it, *read* is.
— 190, — 6, *after* sown, *read* of June 18.
— 270, — 9 from the bottom, *after* deprives, *read* the farmer.
— 271, — 6 and 7, *dele* their stems and foliage.
— 275, — 7 from the bottom, *for* eddits, *read* adits.
— 307, — 12, *after* than, *read* patriotic as.
— 356, — 2 from the bottom, *for* races, *read* traces.
— 427, — 5, *after* 600, *dele* L.
— 480, — 6, *after* which is, *read* not.
— 499, — 20, *after* hence, *read* it is.
— 500, — 2 from the bottom, *after* native, *read* short-woolled.
— 508, — 9 from the bottom, *for* per acre, *read* per ann.

INTRODUCTION.

THE Survey of the County of Devon being completed, and the Report on the Agriculture, Manufactures, and Commerce of that District delivered over to the Honourable Board of Agriculture; at the desire of the President, Sir John Sinclair, the Surveyor in May last entered upon a similar examination of the County of Hants, in which pursuit he has been closely engaged to the present time. Although on a distant view, the general circumstances of this County did not promise to exhibit the like variety, or tend in the same degree to excite so large a portion of interest in the agricultural observer as the County of Devon, yet, on a close examination, a number of interesting points occurred to notice, sufficient, it is hoped, to render the subsequent pages in some degree useful, by showing, in cases under a judicious course of husbandry, the extent of benefit to which the natural resources of the Country may be carried, and in others, details of agricultural management highly beneficial at home, and applicable to similar, but perhaps remote districts, in the united kingdom.

To this end, the utmost care has been taken to describe the nature of the soil and substrata generally, but more particularly whenever the common husbandry of a district has been so conducted, as to carry through all its stages peculiar excellence: with regard to any difference in climate, wherever exemplary practices may have occurred, the judicious imitator in other parts of the British Isles, will necessarily accommodate his practice to such slight deviations in season, as the locality of his situation demands; which done, he may fairly calculate on the results hereafter detailed in such cases.

The human mind being uniformly employed in the same pursuit, impelled with a desire of obtaining some good it is not already in the possession of, the variety of attractions by which it is drawn, even with the same impulse, often leads to dissimilar conclusions; but as the cause of this variety of judgment is in Nature, it may be fairly deemed applicable to the public good. The interchange of these impressions, but more especially of the trials and experience resulting from them, is of the very first concern in the extension of human happiness; as thereby we become acquainted with the conceptions and practical knowledge of each other. Herein is clearly to be seen the utility of disseminating sound and useful information in every branch of knowledge subservient to the purposes of life; and hence in the promulgation of such knowledge and experience among others, is seen the propriety of publishing the County Reports; all of which emanating from such high authority, ought (in the humble estimation of the Author of the following pages) to pass the closest examination, as to the import and tendency of the statements, facts, and opinions they convey; for although the Honourable Board does not consider itself responsible for every statement or opinion contained in such Reports, still the Report issuing under the authority of the Board, must necessarily carry with it in the public estimation the sanction of that Honourable Institution; and which cannot fail of making a much stronger impression upon the public mind, than if it had flowed spontaneously from the pen of an individual.

Brockenhurst,
New Forest, Hants,
March, 1808.

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AGRICULTURAL SURVEY

OF

HAMPSHIRE.

CHAP. I.

GEOGRAPHICAL STATE AND CIRCUMSTANCES.

Ancient History.

HAMPSHIRE, or the county of Hants, called by the Saxons Hamtunscyre, from Hampton, since called Southampton. It was afterwards called Hampteschyre; and hence its present name of Hampshire and Hants are derived.

At the invasion of the Romans, a great part of the county was possessed by the Regni and the Belgæ. The former were a tribe of Ancient Britons, and the Belgæ a people of Germany, who, on passing the Rhine, possessed themselves of a part of Gaul, and then sailed over to the south-west coast of Britain, in order to plunder the inhabitants, and carry back their spoil; but liking the country, they drove out the Britons, took possession of the country, and were found by Cæsar when he made his first expedition into Britain.

This country is thought to be the first that wholly submitted to the Romans. Though less than many others in England, it had six Roman stations; and we are informed by a very eminent antiquarian, that a Roman road ran parallel to the great Ikening-street, from the south-west to the north-east, beginning at the sea-coast, and ending at the sea-coast in Suffolk.

The Belgæ kept possession of the country sixty years after the first landing of the Saxons under Hengist; but Cordric, the founder of the kingdom of the West Saxons, landing at Chardford in the beginning of the sixth century, reduced all the southern shore, as far as the country of the Damnonii, to his authority. The posterity of Cordric ruled the whole country of the Belgæ for several generations; but at length this county was taken from it, and for a time erected into a petty kingdom.

In the reign of King Ethelbert, and the year 860, the Danes invaded the Isle of Wight, ravaged all before them as far as Winchester; but as they were returning, Osric, earl of Hampton, assisted by the men of Berkshire, defeated them, and recovered the spoils. After the Saxons had been settled some time in these parts, they divided the country of the Belgæ into three counties, namely, Somersetshire, Wiltshire, and Hampshire.

Upon this subject it may be curious to remark of this county, as well as of England in general, that the Romans spent one century in acquiring a kingdom, which they governed for four; the Saxons spent 180 years, and ruled 459; the Danes spent 200 years, and reigned 25; but the Normans spent one day only, for a reign of 700 years: they continue to reign still. It is easy to point out some families of Norman race, who yet enjoy the estates won by their ancestors at the battle of Hastings.

SECT.

SECT. I.—SITUATION AND EXTENT.

HAMPSHIRE is a maritime county, situate on the southern coast of the kingdom, and which, during the Saxon heptarchy, belonged to the kingdom of Wessex. It is bounded north by Berkshire; east, by the counties of Sussex and of Surrey; south, by the English Channel and the Sound, which separates it from that part of the county comprised within the Isle of Wight; and west, by the counties of Dorset and Wilts.

The Isle of Wight was called Gwyth by the Britons, Vectes by the Romans, and Weet by the Saxons: it lies on the southern coast of this county, and is included within it. The strait which separates it from the main land is of unequal breadth, being about one mile over towards the western, and about seven miles at its eastern extremity. Its form is somewhat rhomboidal; the diagonal or greatest length, from east to west, 23 miles; and the transverse or cross diameter, from north to south, about 13 miles.

Acres in the County.—Its superficial contents are calculated by the Author from Faden's large map of the county, at 94,000 acres. It is divided into two hundreds, called East and West Medina, and contains 30 parishes or tithings; and exclusive of its being at this time a considerable military depôt, contains about 22,100 resident inhabitants. The southern extremity of this island lies in about 50° 36½′ north latitude, and about 1° 12′ west longitude from London.

The area of the other part of the county, deduced from the same authority, is found to contain 1,512,468 square miles, or 968,149-3.00 statute acres; and from the enumeration made under the 41st of his present Majesty, it appears to contain a resident population of 219,656 souls, and consequently averages about $132\frac{2}{5}$ to each square mile of 640 acres.

SECT. II.—DIVISIONS.

Political.—The above extent is divided into 52 hundreds or liberties, which are again subdivided into 356 parishes, precincts, hamlets, and tithings, and one city, Winchester, which sends two members to Parliament, and gives the title of marquis to the Powlet family.

There are 19 other market towns, viz. Southampton, which sends two members to Parliament, and gives the title of baron to the Fitzroy family; Andover, which gives the title of viscount to the Howard family, and sends two members to Parliament; Lymington, which sends two members to Parliament, and gives the title of viscount to the family of Wallop; Christchurch, which sends two members to Parliament; as do Stockbridge, Whitchurch, and Petersfield, with Newport and Yarmouth, in the Isle of Wight. Newton, in the Isle of Wight, sends two members to Parliament, although it is not a market town. The following market towns do not send representatives to Parliament, viz. Basingstoke, Alresford, Alton, Farnham, Havant, Emsworth, Kingsclere, Odiham, Ringwood, Rumsey, Fordingbridge, and Waltham.

Among the villages, Titchfield gives the title of marquis to the Bentinck family; Porchester, the title of baron to the Herbert family: St. Helen's, in the Isle of Wight, gives the title of baron to the Fitzherbert family; Basing, the same title to the family of Powlet: Beauley gives the titles of earl and baron to the Montague family; Catherington, the title of baron to the family of Hood; Mountjoy, the same title to the Stuart family; Stratfield Saye, the like honour to the family of Pitt; and Farley Wallop, a similar dignity to the family of Wallop.

Besides the Isle of Wight, the islands of Jersey and Guernsey are included as parts of this county. The first of these latter isles gives the title of earl to the family of Villiers, and the second that of baron to the family of Finch.

This county sends 26 members to Parliament, viz. two for the shire, and the others as expressed above; pays fourteen parts of the land-tax, and produces 960 men to the national militia.

The *New Forest* occupies a large extent of the south-western division of the county; and on its south-east and eastern quarters are the chase and forests of Bere and Bishop's Waltham, and of Woolmer and Alice Holt. Parkhurst or Carisbrook forest, lying north-westwardly of, and at a short distance from Newport, in the Isle of Wight, afford, with other extensive and highly improvable wastes in the county, objects of great national concern.

A light sand, and gravelly character, very much prevails through the greater parts of the heath lands. A clay or argillaceous loam, tempered with sand or gravel, gives rise to the natural productions of the woodland parts of the forests, which consist of oak, beech, elm, holly, and a considerable variety of underder-growth; all of which will be duly noticed in their proper place. The other productions of this county are, corn, sheep, cattle, and hops. It has been long celebrated for its honey, and in affording the best bacon in the kingdom.

Its *Manufactures* consist of woollens, leather, silk, bed-tickings, and the coarser kind of earthen-ware; and in the naval arsenal at Portsmouth, may be seen one of the most important magazines in the united kingdom.

Ecclesiastical.—Hampshire lies in the province of Canterbury and diocese of Winchester, and with the county of the town of Southampton, is included in the western circuit of the kingdom.

The maritime advantages of this county may be pretty well understood by a view of the following harbours and roadsteads which we find upon its coasts, viz. Emsworth, a dependency of the harbour of Portsmouth; Haling and Portsmouth harbours, with their dependencies; Botley, Bustleton, and Hamble, on the river Hamble; the inlet of Southampton, with the mouth of the Itchen and Teste rivers; their ship-yards, and the smaller havens of Redbridge, Eling, Hithe, Cadland, and Fawley; the Beauley river, with its dependencies, slips, and private dock-yards; Lymington, or Bolder-water, with a number of small creeks through the saltings, including that of Keyhaven; the harbour of Christchurch and its branches, forming the mouth of the Stour and the Avon rivers. In the Isle of Wight are the harbours of Hithe, Cowes, South Yarmouth, and Brading. The roadsteads which insulate the southern part of this county, and form the Isle of

Wight, are those of St. Helen's, Motherbank, Spithead, East Cowes, Hampton-bay, and the roads of West Cowes and Yarmouth; the latter terminated by what is commonly called the Needles, the narrow passage or channel of which is formed by a broad projecting bank of shingle thrown up by the sea, and upon which it beats with great violence during the most prevailing winds. This shingle is united with the main land in the parish of Milton; and upon its south-eastern extremity is erected Hurst-castle, built in the reign of Henry the Eighth, as a security for the New Forest, and upon which are mounted several pieces of cannon, which sweep round, and give an absolute command of the neck and channel on every side.

The principal rivers which water this county are the following: The Avon rises in Wiltshire, and enters this county near Fordingbridge, whence it passes through Ringwood, after which it unites with the river Stour in the harbour of Christchurch. The Teste rises in the north part of the county, and running southwards, forms several islands at Stockbridge; thence it passes through Rumsey, and enters the Southampton inlet at Redbridge. The Itchen, also called the Abre, has its source at Chilton Candover, near Alresford, whence it pursues a southwardly course through the city of Winchester, thence again southwardly, to its junction with the Southampton water. This river was made navigable from Southampton to Winchester as early as the reign of William the Conqueror.

The bathing, and other places of most general resort, on the shores of this county, during the summer season, are, Christchurch, Muddiford, Lymington, Southampton, with Yarmouth, Cowes, Hithe, Brading, and Shankling, in the Isle of Wight.

DISTRICT I.

Woodlands and the wastes of Bagshot, clay, sand, gravel, and peat; the last found upon the wastes and in some of the enclosed low grounds.

Climate—Generally mild and indulgent. A considerable humidity prevails through all the lower parts of this district; and although the winds from the north and easterly points bring a much drier air than can possibly be supposed to originate in the woodlands, still the raw damps exhaling from this part of the district, are supposed to produce rheumatisms, and to be otherwise unfriendly to the health of the inhabitants. The south-westerly winds are however the most prevalent: these are frequently accompanied with fogs, which continue several days, and are always regarded of a genial nature. The easterly winds are those only that are dreaded for their blighting qualities, and which are found, as usual, to prevail most in the spring of the year.

DISTRICT II.

Strong flinty loams and hazel-coloured mould on chalk, occasionally veined with gravel: more or less peat in most of the vallies.

The air, through the whole of this district, is dry, thin, and healthy. The westerly gales are by far the most common and violent; but those from the opposite quarter are found most injurious to fruit, and repressive to vegetation, in the spring and early part of summer.

DISTRICT III.

Malm, sand, and gravelly loam, clay and peat: the latter found chiefly upon the wastes; also in Woolmer and in Alice Holt forests.

There is little to be noticed on the climate of this district, saving that its bog and morassy parts, as well as those of the first district, are supposed to yield vapour in the fall of the year, which is thought to occasion slight attacks of ague and fever, but seldom continue, or are thought to be propagated after the frost sets in. The most prevalent winds are those which have been already noticed.

DISTRICT IV.

Light sand and gravelly loams, intermixed with clay and brick-earth on substrata of argillaceous and calcareous marl. Much peat and turf moor prevailing on the heath and low grounds, particularly in the forest of Bere, Waltham Chase, and New Forest.

A great mildness of climate distinguishes the whole of this district. The westerly winds are found to be by far the most common and violent. Along the borders of the Southampton water, agues and fevers still prevail, although by no means so general as they were experienced about twenty years ago.

DISTRICT V.

Chalk of Portsdown, and the islands of Portsea and Haling, a strong flinty, and a tender hazel-coloured loam, prevailing in the islands and low grounds.

The climate of this district varies considerably: a dry, but generally keen air, characterizes its higher parts;

whilst the islands of Haling and Portsea, with the surrounding shores of these harbours, are found, towards the close of summer, to produce agues and fevers, and a consequent debility at that season, among many of the rural inhabitants.

DISTRICT VI.

North and south borders of the Isle of Wight, rough strong clay, argillaceous and calcareous marl.

The southern division of this district is much exposed to the fury of the westerly winds; whilst that looking to the north, though in a great measure exempt from the like turbulence of weather, is still not so forward in its seasons by ten days or a fortnight. In the absence of the south-westerly gales, nothing can exceed the mildness and salubrity of the climate on the south side of the island. The northerly winds seem little to affect this situation, as their force and height are much abated by the elevated range of down and forest land, which extends nearly east and west through the middle of the island, and divides the northern from the southern quarter of this district. The north-easterly winds prove extremely hurtful in its northern division, by retarding vegetation in the spring of the year, and by the mischief they produce among the early fruit and apples.

DISTRICTS VII AND VIII.

Tender, red sand, and gravelly loam, with argillaceous and calcareous marl, chalk, and its usual accompaniments, red loam and flints.

If we except those places where agues and fevers prevail, and the objections already urged against the climate of the woodlands, these districts exhibit all the variety of climate any where to be experienced in other parts of the county; there being a difference of at least a fortnight in the seasons of the Seventh District, between the red sandy loams on the south side of the Downs, and the light rubbly character of soil which is found high upon the Downs on their north side. The air, through the whole of this island, is favourable to the human constitution: much advantage is annually derived from it to its unhealthy visitors, particularly those afflicted with pulmonary complaints, upon retiring for a short time to its southern borders.

The Surveyor has much to regret, that, during his whole progress through the county, he was not so fortunate as to meet with, or hear of, a single individual who kept any register of the weather, of the quantity of rain that falls, or any other meteorological tables.

SECT. III.—SOIL.

DISTRICT I.

THIS district admits of much variety in its soil and substrata, the leading distinctions of which, the Surveyor will now point out with all the accuracy in his power, that as just an estimate as possible may be formed of its agricultural economy, and the results hereafter noticed. To this end, the description will begin on the eastern extremity of the district, in the parish of Aldershot, and near the head branches of the Blackwater river, issuing from Tukesbury-hill.

The soil of the tillage land north-eastwardly of this hill, is generally composed of a darkish-coloured sand and gravelly mould, of a good depth, and lying on an open subsoil. This, however, is frequently veined with a brown loam of a stronger nature, and which, from the moisture of its bottom in its present state, is altogether unfit for the culture of turnips.

The borders of the Blackwater, and its branches, afford some narrow tracts of meadow and pasture land, the soil of which is that of a dark-coloured sandy loam upon a clay bottom; but being frequently intercepted with veins of sand and gravel, produce innumerable springs and spongy places, occasioning a late and very inferior vegetation in the beginning of summer. This character of the low grounds continues, with little intermission of superior lands, through Farnborough and Yately, accompanying the same water-course to where that river leaves the county of Hants, and enters a detached parcel of the county of Wilts, situate near the south-east corner of Berkshire.

The soil which composes the meadows and low grounds on the Whitewater river, and the number of small branches which head into this district from the river Auburne, consist also of a dark-coloured sand and gravelly mould, of a good depth, but lying on a variety of substrata of clay, loam, peat, and gravel, and which, as before noticed, is found to abound very much with springs, and to be of a very wet, spongy, and backward nature, and consequently producing a very inferior herbage.

The north part of the parishes of Dogmersfield, Odiham, Gravel, and Nately; the whole of the parishes of Winchfield, Hartley Wintney, Elwethem, Rotherwick, Maddingley; the south parts of Bramshill, Heckfield, and Stratfield Saye; the whole of Holdshot, Stratfield Turges, Hartley, Westfall, Shirfield, and Newnham; the north part of Skewers and

Old Basing, Chinham St. John's, and Shirborn, with the whole of Pamber, Bramley, Tadley, and the south parts of Silchester, and Baugh-hurst; the north parts of Ewhurst, Kingsclere, and Bughclere, Highclere and East Woodhay, with the whole of Itchingswell and Wulverton, consist of a strong, brown, and grey loam, upon a tough, blue, and yellow clay, and appearing generally to labour under an excess of moisture.

These strong lands are frequently intersected with veins of red, white, and yellow sand and gravel; the water passing along which, and coming to the day, occasions a number of wet and boggy places.

Ascending from the woodland valley to the northward, the leading features in the low country give way to a soil of a more gentle nature; upon which, in addition to beans, wheat, oats, and clover, barley and turnips may be, and are cultivated to advantage. The luxuriant growth of oak seems here in some measure to give place to ash and elm; which latter in many places, particularly in the park at Stratfield Saye, are not to be surpassed for grandeur by any in the kingdom.

Proceeding farther to the northward, this temperate mixed soil is again lost in a thin sand and gravelly mould, upon deep beds of white, red, and yellow sand and gravel, and a wet hungry loam, upon a moist, loose, white, and yellow clay, and altogether forming the leading character of that extensive range of heath land which forms the southern borders of Berkshire and a part of Surrey, constituting a part of Bagshot-heath and Frimley-common.

South of the woodland, another tract of temperate mixed soil is found skirting upon and between the clay and chalk districts, and which appears in many places gradually to unite and run into each other. Ash, elm, oak, and the abele poplar, seem to vie with each other for number and luxuriance; and here a far more valuable proportion of meadow and pasture land is found.

A large quantity of peat is annually dug on the commons of Cove, Farnborough, and Aldershot; but no attention appears to have been paid to reclaim the old peat pits: these places therefore still remaining in a state of excavation, are found very dangerous to the commonable stock which depasture round them. The number of acres of peat, as well as of the extent of these commons in general, would have proved desirable information; but this it was found impossible to ascertain with any sort of accuracy. The largest body of peat appeared to lie in the parish of Cove, and where it seemed much in demand for the coarse potteries established in that parish.

The blue and yellow clay through the whole extent of this district, is strongly veined with an ochre or rust of iron. It is frequently broken by strata of red, white, brown, and yellow sand, which coming to the day above the stronger clays, occasion many springs and spongy places: the parts, however, that have been properly drained, have derived great benefit from that measure, and the application of chalk, procured from the borders of the adjoining district, transported in some cases to the distance of eight or nine miles, and at an expense of as many pounds per acre.

On a general view of the soil of this district, the woodlands may be said to consist of a tough, sour clay. The heaths and commons, interrupted with peat and swampy bottoms, afford but indifferent pasturage on substrata of gravel, wet and poor sandy loam.

DISTRICT II.

However diversified the surface covering of a country may be, it is the uniformity of its substratum that must generally mark the extent of such divisions as may be required for an agricultural examination of it. Independent of what Nature is daily performing in the top mould by the aceration of animal and vegetable matter, and by the accidental increase or diminution of moisture, the soil may be gradually undergoing changes from its pristine state by art and cultivation. The substratum, therefore, being out of the reach of such changes, particularly those produced by the avidity of man, remains with little alteration, and is still found in the same condition it was first impressed with, and thus exhibiting to our present enquiries the most certain guide for making the proper subdivisions of the country.

Notwithstanding the uniformity prevailing in the internal composition or structure of this district, which chiefly consists of a firm unbroken bed of rock chalk, its soil or surface covering is so much varied and blended with each other, as to require much attention to the describing of it in such a manner as to make all i[illegible]rieties clearly and distinctly understood.

The first of these soils, covering some of the highest parts of the district, is provincially called hazel mould, a light, dry, friable, sandy soil, of a moderate staple, and resting upon a chalk rubble (that is, partially dissolved chalk mixed with small broken flints), and which in its native state, affords a short but very good sheep pasture; and which, from its superior elevation, is not early affected by a spell of warm dry weather; but when reduced to a state of tillage, becomes of very little value indeed. This land, after being opened to aration is very liable to wash: upon many of the brows and side hills of the principal eminences, the light materials have been carried off by the heavy rains, when the remaining surface exhibits a collection of what its subsoil was originally composed of, and which altogether appears unfit for any other purpose than of conversion to a rabbit-warren.

The second description of down soil which we shall here have occasion to notice, consists of a black vegetable mould, generally of a moderate depth, and lying directly on a bed of flints and rubble, and by which it seems interrupted at some distance from the chalk rock below. This soil is evidently produced from an ancient vegetation produced at such times at this species of down was in a forest state: a conjecture much strengthened by the number of thorn bushes, ewe, furze, and juniper which are still found scattered upon it. This sort of down, when properly (that is, hard) stocked with sheep, produces a remarkably sweet herbage, and is still less liable to be affected with a continuance of drought than the soil above described. When appropriated as cow common, or not stocked sufficiently close with sheep, it is apt to produce a dwarf species of ling and furze, but which may always be kept down and in an improving state, by stocking with that sort of sheep which are best calculated to browse in such situations and upon such an herbage.

The third class of down land we find occupying a large portion of this district. It consists of a thin grey loam, lying almost immediately on a firm bed of chalk. Here the sheep pasture is generally short, but of a most excellent quality: it is, however, more suddenly affected in a dry season than the preceding classes, but, in like manner, requires to be kept pared close down, to preserve the natural sweetness of its herbage.

A fourth class of land at present occurring upon the Down, and also forming a large portion of the tillage land in the country, consists of a deep, strong, red, flinty loam, lying at various depths, of from one to eight or ten feet, upon, and partially dipping into the rock chalk below. This character is usually found to occur on the flat tops of all the lesser eminences in the District, and derives very great and important benefits from chalking, the preceding classes not being in the slightest degree benefited by that material. The depth of this red loamy stratum, above the chalk, sometimes subjects it in the winter season to an excess of moisture; but which is generally much relieved by a due attention being paid to gripping and water-furrowing. This circumstance, however, appears in many places to have given rise to a coarse, tough, and wiry herbage. It abounds with large ragged flints, and though naturally of an arid quality, is capable after chalking of producing excellent wheat, and a prime sample of barley.

A fifth description of land is found to occupy the brows and side hills of this last class, but which has been much lessened of its loamy proportion by the winter rains and melting snows: here is generally but a thin staple of soil, and that chiefly composed of dissolved chalk,—tough and clingy when wet, harsh and chisselly, but when worked at a proper crisis, is found loose and friable; and not unfrequently applied to the culture of turnips, and a convertible system, as well as for the culture of sainfoin, for which it seems most particularly adapted.

Below the hang of the hills, a deep, strong, grey loam

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to, or after wheat, in the place of a fallow.

The surface of most of the hollows, and lower sides of the hollows, with which the whole of this district is intersected (and exclusive of the vallies which afford the rivers and other living streams), is formed of an assemblage of small flat flints, combined with an extremely tough, but proportionably small quantity of loam; and which continues at various and indefinite depths to the chalk below. This is provincially termed shrave, of which there are two sorts, the one just mentioned, which gives the idea of a bank of shingle upon the sea-shore; the other, a red coarse pebbly gravel, mixed with a small portion of tough red loam, or more commo-

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n elevated plain, broken into many ir-
s, and intersected by several deep hollows,
the brooks and rivulets, rising chiefly within
District, descend on a southern course towards the
sea. Along these vallies considerable tracts of meadow and pasture ground are found. On the margin of these water-courses, or rather the vallies through which they pass, for obvious reasons, are seated the greater part of the inhabitants.

The soil of these low grounds partake very much of a black vegetable mould or moor, on a strong calcareous loam, sometimes superinduced with an adventitious sand, or stratum of fine gravel, or apparently broken into chasms, occupied with large bodies of peat, and which is occasionally dug for fuel, or burnt in the manner practised in Berkshire for manuring ashes.

From the number of stumps found rooted in the beds of these vallies, discovered when digging peat, draining, or forming ridge-work for water-meadows, there is little doubt but the whole, or greater part of the vallies through which the rivers and their head branches descend, were formerly woodlands of a low and swampy nature. At that time the moory covering of these vallies were formed; and in proportion as the peaty mould is found to combine with an earthy sediment brought by the freshes from the adjacent hills, is the low ground capable of answering the views of improvement and cultivation.

Although springs and weeping places are by no means so frequent in a chalk country as in that where the understratum is more diversified, still, where the springs do burst out, they appear of a more formidable nature. Along the sides of these vallies, and not unfrequently in the water-courses, open and boggy places occur, the depth of which, from the difficulty of sounding them, the inhabitants pretend not to know. The utmost care is taken to guard these places from the approach of cattle, as also to proceed with caution, when scouring and cleansing out the water-courses, on which occasions ropes, poles, and hurdles, are always provided, and at hand, to rescue any of the workmen whose safety may be endangered by such places.

The springs not rising so frequently here as in a country more variously stratified, prevents the lower declivities of the chalk-hills from being so much inconvenienced with a weeping character: such situations are, therefore, found of a much drier and sounder nature, than in the clay and gravelly districts. The water, however, in the lower levels of these vallies, is apt to find a way between the understratum of chalky loam and the top covering of moor and sandy gravel, thus requiring attention to be paid to draining before such low grounds are converted to water-meadow.

The Surveyor took much pains to examine and mark the line of separation between the chalk and the districts that bind south and eastwardly upon it; but from the number of sand and gravelly veins, and bodies of clay, loam, malm, marl, and brick-earth, which run into and indent each other upon those borders, it became absolutely impossible, without making a particular examination of almost every enclosure, to trace all its points and windings with the precision he could have wished; and has, therefore, to trust to the indulgence of such of his readers, whose local and more intimate knowledge of the country may enable them to discover any small deviations from the line delineated on the map, not exactly corresponding with the separation of soil and substrata it is intended to exemplify.

DISTRICT III.

This small District includes the forests of Woolmer and Alice Holt; the hills of Benfield, Great and Little Workham, Selbourne, and Empshot, with all the lower sides of the chalk-hills, surrounding and forming the Vale of Petersfield, consist of a grey, tender, sandy loam, of a very good depth or staple, and lying on a soft species of sand rock, and which soil and substratum is provincially termed malmy land.

In some of the more level fields in this District, this substratum is found to hold up the water in the winter season, much to the injury of the growing crops of wheat, as also to the stock and land whilst consuming the turnips, and which this sort of land is capable of bringing to very great perfection. The difficulty, however, of getting the turnip crop off in due season, without injury to the stock or land, has given rise to the more general culture of the ruta baga, which stands the wet season extremely well, and are seldom required until the early spring winds begin to exhale the surplus of the winter's moisture.

A tough, brown, flinty clay, at some distance from the chalk, with veins of a light sandy loam, upon a dry, deep sand, and sharp gravel, are found alternately to form the soil and substrata of this valley.

Ascending from which, in a north easterly direction from Petersfield, an extensive tract of sand and gravelly heath land occurs, part of which has been judiciously applied to the culture of the Scotch fir. This character continues along the borders of Sussex, in and along the confines of Woolmer forest, and from which it differs very little, either intrinsically or in exterior appearance, until we approach the enclosures of Liphook, through which, and the parishes of Bramshot, Lidshot, and Headley, a sandy loam of a gentle nature prevails; and which is generally appropriated to the culture of turnips, with such corn and other green crops as are usually connected with that husbandry. The light sandy lands of this part of the District are by no means free from occasional interruption by veins of stronger loam, which are found to pervade the higher parts of the country; whilst the low grounds and vallies exhibit a thin moory soil, upon a blue, brown, and yellow clay. Substrata,—that we find more or less finely streaked with an oxyde or rust of iron.

DISTRICT IV.

This District, besides including many extensive wastes and commons, is found to comprehend the forest of Bere, Waltham Chase, and the New Forest; all of which, with the forests of Alice Holt and Woolmer, as well as the forest of Parkhurst or Carisbrook, in the Isle of Wight, will be lightly touched upon in the Eleventh Chapter, and duly noticed in the concluding Chapter of this Report.

The soil of the cultivated lands bordering upon the forest of Bere, and Waltham Chase, including the crown demesnes, and other enclosed parts of those forests, consist partly of a thin vegetable mould upon strata of deep sand, coarse gravel, and a moist grey loam upon a woodland clay. A gravelly loam of a more uniform texture, assuming a light brown or rather hazel colour, seems partially to occur in this variety, and particularly to distinguish the neighbourhood of Southwick, Wickham, Bishop's Waltham, and Botley. The cultivated parts of the parishes of Titchfield, Crofton, Rowner, and Alverstoke, consist of a thin light friable mould upon a gravel, a rich hazel-coloured loam upon a brick-earth, and a moist grey loam upon a strong, blue, white, and yellow clay. The same variety extends through all the cultivated lands from Gosport to the Itchen river.

The soil of the heaths and commons which occur in this part of the county, and which are generally found to compose the higher lands between Gosport and Titchfield, between Titchfield, Bursledon, and Botley, and between the two latter places and the Itchen river, is not materially different from the same variety of soil and substrata which from the character of the new enclosures at Fareham, and which are found composed of a thin black gravelly mould, and a moist grey loam, on substrata of sand and gravel, strong white and yellowish clay, potters' clay, and brick-earth. Intervening between these latter and the top-mould, is often found a thin subsoil of gravel, but which may be rendered useful, if due advantage is taken of it, for conducting the sub-waters into drains properly constructed to receive it.

The late enclosures of South Stoneham, consist chiefly of a thin, black, gravelly mould, upon a bed of harsh gravel, a peaty mould upon a blue and yellow clay; and, upon the whole, differing but little from the varieties above noticed in the parish of Fareham.

The frequent intersections of clay and gravel occasion many wet and boggy places, round which, peat is dug, or rather turf is pared, to a depth of four or six inches, by the inhabitants for fuel.

A country veined with clay, sand, and gravel, continues through the parishes of North Stoneham, Townhill, Swathing, Bishopstoke, and Otterbourne; ascending northwardly from the latter village, the miscellaneous soil and substrata suddenly terminates in the great body of chalk forming the character of District No. II.

The cultivated lands north of Southampton, Millbrook, and Redbridge, are much contracted by the extensive commons of Nutshaling and Southampton, but their soil generally consists of a mild gravelly loam and a tender loamy clay. This valuable character pervades to a considerable extent, the commons of these places; but as we approach Chilworth and Badsley, it is found to abate somewhat of its natural superiority. Considerable enclosures have lately taken place in these latter parishes, from which, by the aid of draining and the application of chalk, great advantages may be expected to be derived in future. The same variety of soil and substrata prevails through the southern parts of Timsbury; but northwardly it enters the chalk district. A substance called malm, of which there are two sorts, black and white, is found on the borders of Timsbury and Rumsey, and much used as an alterative manure on the sour clays and gravelly heaths composing the enclosures recently made in those parishes;

parishes: it is applied in quantities of about eight waggon-loads of 66 bushels each per acre.

The country south of the Buckholt and Houghton hills, including the parishes of East and West Tytherly, consist of a strong flinty loam upon a chalk, and which is found to extend southwardly as far as the parish of East Dean, and the northern parts of the parish of Lockerly. The southern parts of which, East Dean, Shirfield English, and East Willow, consist of a thin gravelly loam on a subsoil of close retentive clay; below which, very often occurs deep beds of sand and gravel. This land is very subject to springs, which in their present neglected state, prove very injurious to the country. As the land rises eastwardly from the river Teste, a more uniform substratum, and a stronger staple of land, occurs, and in which there was observed a very thriving growth of oak timber.

In the lower part of the country the oak tree clay disappears; and elm generally, with some ash, are found to flourish on a more genial surface and open subsoil. The low grounds bordering upon the river Teste, possess a general character of loose moor or vegetable mould, beneath which is a calcareous substance also called malm (*i. e.* marl or chalky clay), and much valued as a manure, either upon the light or stronger loams which occur in the parish of Rumsey Extra; the quantity applied agrees with that before-mentioned.

Descending southwardly from the heaths towards Paulton's-park, we find that noble demesne to possess a soil and substrata not only highly favourable to the growth of oak, but to forest trees in general. The park and surrounding country preserves a smooth and uniform appearance, till broken south-eastwardly by Hill Common and Tachbury Mount. A considerable extent of flat low ground then occurs in the same direction, including Netley Marsh; thence towards Eling, and for some distance westwardly into the New Forest. The soil of this plain is generally a moist grey loam of a thin staple, on a woodland clay and brick-earth. That of the adjacent enclosures, of a freer and more open quality.

The country along the confines of the New Forest, and the western side of the Southampton water, is much broken, exhibiting along the river hills a considerable variety of top and under soil, and consequently affording several wet and spongy places, many of which have been much relieved, and some completely cured, by judicious draining. On the demesne of Cadland, these improvements, under the direction of Mr. Elkington, have been carried to a considerable extent, which has not only contributed to adorn this otherwise interesting country, but at the same time to render its climate more salubrious to the inhabitants.

Leap Pond is an extensive, though highly improvable morass; and as the property in the waste appears to be vested in two gentlemen only, and each possessing highly interesting demesnes in its neighbourhood, it was not without some surprise that it was observed to have lain so long in its present condition.

The soil in the manor of Beauley may be taken generally as a specimen of that which occurs in the country round Lymington, and thence westwardly along the sea-coast for three or four miles. This consists of two leading characters: the one a mild gravelly loam, approaching a hazel colour, lying on an open subsoil sometimes terminating in sand or gravel, but more frequently intercepted at various depths from a deep bed of red, blue, and white marl below; the other a thin light black gravelly mould, generally of a moderate depth, and lying on a close stratum of clay and brick-earth of various colours, and under which at a still greater depth, is occasionally found the same field of marl first noticed.

Of this substance it may be proper farther to state, that although the blue and reddish colour generally prevails, and their basis is most probably argill, mixed with sand and some calx, yet there are veins of absolute chalk, and bodies of shell marl, composing the white character, and which are always found to occupy and accompany the other part of the marl stratum, the dip or inclination of which is very gradual, and generally to the northward. It is supposed to vary much in its quality, but generally to get stronger and more valuable as the pit deepens. Instances as yet are but few, of the marl stratum being worked through to the bottom.

This marl is found of various modifications, as to the relative proportion of the primary earths which compose it: upon the salt marshes towards the mouth of the Beauley river, the argill predominates so powerfully, as to render it convertible into a most beautiful white brick. At Lymington a similar substance in appearance is burnt into red bricks: neither of these are in use as a manure, although they both effervesce in a very weak preparation of the muratic acid.

The value of this substance as an alterative manure upon the hazel and black mould, is demonstrated by the great pains and expense bestowed in procuring it, where the gravelly or porous subsoil comes to the day over the under stratum of marl; or where the same lies enclosed within a higher sub-level of marl clay, or brick-earth; springs are formed in the sides of the hills, and wet and weeping places occur upon the more level ground.

Although a general character of sand and gravelly loam, intermixed with blue, white, and red marl, marks the nature of the country between the forest and the sea-coast, from near Christchurch to Milton, yet in this quarter, and at no great distance below the surface, a close retentive stratum of loam prevails, that tends much to keep up the water to such a height, as to produce reeds, flags, and rushes, and a variety of other aquatic plants in most of the ditches.

Ascending the valley of the Avon from Christchurch towards Ringwood, a light sandy soil on a similar substratum and gravel, prevails on both sides the river; but approaching the forest towards the east, the top-mould and subsoil become of a stronger texture, and are favoured with the casual occurrence of a similar body of marl to that above noticed.

On the western side of the Avon, the country rises suddenly, and spreads into extensive heaths and commons, which occupy in that direction the greater part of the country lying between the Avon and the eastern fork of the Stour river. The soil and substrata of those heaths consist chiefly of a thin dry vegetable mould, on a deep stratum of quick running sand and dry gravel, or a thin moist grey loam, on a wet hungry clay mixed with gravel.

A large proportion of these wastes have been judiciously appropriated to the culture of larch, beech, and all the variety of the fir and pine tribe. In these improvements Lord Malmesbury appears to have taken the lead. A light sandy soil easy of tillage, and well calculated for the culture of barley, forms the leading character of the cultivated lands up the valley of the Avon, towards Ringwood: but this gradually disappears as we approach Fordingbridge, north of which town, and towards the extremity of the county, the following variety seemed chiefly to prevail.

Along the Avon, between Fordingbridge and Breamore, the soil consists of a rich gravelly loam of a good staple on a gravel; but this is occasionally broken by veins, between which, as usual, springs are found to rise. Approaching the borders of Dorset and of Wilts, we find a light, hazel-coloured mould in the higher parts of the county upon a chalky rubble, and very much corresponding with class No. 1. in District No. II. The southern parts of the parishes of Rockbourne and Breamore, consist of a sand and gravelly loam, on a similar subsoil, but in the northern parts of these parishes, and the same quarters of Whichbury and Hale, a red flinty, and strong brown loam, occurs at various depths on a body of rock chalk.

A small tract of rich sand and gravelly loam is found to occur in the parish of Holdenhurst; but this is much narrowed by the vicinity of Pool-heath on one side, and a wild and extensive tract of heath land that occupies the whole space after we ascend from the river levels between the Avon and the Stour, and an eastern branch of the latter river. This corresponds so much in character with what has been before stated of the heath lands in this quarter, that little farther seems necessary to add, beyond remarking, that the whole of Pool-heath, at least so far as lies within the bounds of this county, seems entitled to a rank of something above the ordinary character of the poorer heath lands.

The low grounds composing the valley of the Avon, are found chiefly to consist of a moory soil, which continues at various depths upon strata of clay, sand, and gravel. The same character prevails through the cow lays adjoining West-heath, and in addition to the substrata above noticed, a stratum of what is called malm (*i. e.* marl or chalky loam) occasionally occurs, and which is employed with much effect on the light sand and gravelly soils of the Avon country. The quantity of this substance, applied in convenient situations, is 20 loads, of 25 bushels each; and cost raising and carting, at the average distance, about 6*l.* per acre.

No material difference takes place in the low lands on the borders of the Stour and Avon, until these rivers approach the points where the tidal waters, arresting the descent of the land waters, deposited their sediment: there a material alteration is produced, the surface being changed from a dark vegetable peaty mould to a sound hazel-coloured loam, upon a subsoil of an open nature, rendering all such low grounds extremely valuable.

To the description already given of the soil and substrata of the low grounds and vallies in District No. II. it is here necessary to say, that the same formation and character appears to be continued without any material alteration through this District, to all those points in the vallies opening upon the sea-coast, where the tidal and land waters did formerly, or do at present meet, and thus combine to spread their enriching influence.

DISTRICT V.

This District comprehends the Naval Arsenal at Portsmouth, and is thus rendered one of the most important in the kingdom.

The soil and substrata of Portsdown-hill consist of a similar variety found on the more or less elevated situations in the chalk district. The foot of this hill in its north and west sides, is much indented with strata of clay, sand, and gravel, and consequently affords all the variety of top and under soil we have had occasion to notice on the northern boundary of the preceding district.

Along the southern foot of Portsdown-hill, and bending upon the low grounds and marshes, through the parishes of Portchester, Wymmering, Cosham, Farlington, and the western parts of Bedhampton, a grey and brown loam of a good staple, on substrata of rubbly chalk and gravel, very generally prevails, and which, from the vicinity to the Portsmouth manure, is found to yield very abundant crops.

A rich gravelly loam, upon an open subsoil, and ultimately resting on a bed of strong calcareous marl, and a strong brown loam with few stones, and a still more retentive bottom, compose the leading character of soil and substrata in the eastern parts of Bedhampton, and through the parishes of Havant and Emsworth, and which seems to be a continuation of the rich loamy Vale of Chichester.

No material difference appears to take place between the soil of Haling, and the lands skirting along the northern shore of the harbours of Portsmouth and of Haling: it seems mostly to agree with the dark brown character above noticed, and which always proves of a loose and friable nature if broke up and worked in due season. When ploughed wet, it rises tough and livery, and if suffered to get dry and hard before it is broke up, it then becomes impossible to separate the soil from the understratum, out of which it rises in large cakes and pieces, and proves absolutely impenetrable to drags, harrows, or the heaviest rollers in use in the country.

The cultivated lands in Portsea Island, are of a more open and tender nature than those generally occurring in the island of Haling: they are often found lying on a warm understratum of gravel, and well calculated for the large extent which is occupied as garden ground. Its native hue is that of a hasel colour; but this has been so much disguised with coal-ashes, and the great variety of rubbish supplied by the town of Portsmouth for manure, that little remains of its native qualities in many places, but that of being productive generally and in a very high degree. A stratum of clay being often found to intercept the chalk or gravelly strata from the top-mould, as well on the main as in the neighbouring islands, continued from the foot of the higher country; the giving of such lands a clean hollow-draining could not possibly fail, when added to their locality of situation, of rendering them earlier in their spring produce, and generally more abundant in a still more valuable produce, than at this time they are known to be.

There is a good deal of loam marsh land, subject to occasional overflowings from the spring tides, on the coasts of these islands, particularly on the east [illegible] of Portsea Island; this is generally appropriated as saltings. The higher levels not formed by the tidal waters, or composed of adventitious soil, appear in many places to be much neglected, being much encumbered with furze and rushes. On the south side of the island a sandy character very generally prevails, and the bed of shingle on the south-east coast affords large supplies of ballast to the coasting shipping, as well as an inexhaustible hausible material of a very good quality for making and repairing the roads between Fareham and Chichester.

ISLE OF WIGHT.

SOIL CONTINUED.

DISTRICT VI.

We must now pass over to the Isle of Wight, and endeavour to trace the leading features of the soil and substrata of that highly favoured island.

On the western quarter of the northern division of this District, the soil appears much varied, but which in some places may be more aptly referred to the treatment it may have undergone, than to any specific difference in its native quality.

From Yarmouth, extending eastwardly along the northern coast of the island, towards Cowes, bounded southwardly by the King's, or Carisbrook forest, and returning thence westwardly, at an average distance of about a mile from the coast, the soil of the country is composed of a strong gravelly loam, upon a brown and yellow clay, and which is generally found to terminate in a deep bed of grey, and a bluish argillaceous marl. A strong, brown, tough clay, without stones, and lying on a purple, red, blue, and yellow clay, form the other character of soil and substrata composing this strong land district; but in which, and in addition to the argillaceous marl, a pure white shell marl is found to occur, in veins of various thickness, through the parishes of Thorley, Shalfleet, Swainston, and under the western parts of Carisbrook forest.

Whenever this shell marl can be obtained at a reasonable expense, it is applied with wonderful effect, as well on these stubborn as upon the lighter soils in the adjoining district. The quantity applied, about 20 loads per acre. It is stated to be more languid in its operation than chalk, but more prompt to work, and permanently valuable, than the argillaceous marl, particularly in the strong clay soils. Some of the best veins of shell marl noticed on the Survey, were found in the parish of Colbourne, about three feet from the surface, and extending on wide beds or layers 30 feet deep.

Mr. Tricket, of Emsworth, applies the same quantity of the argillaceous marl upon the strong clay soils of that parish: he observes, that whilst this dressing contributes to render these lands still more tenacious, it undoubtedly possesses a power of communicating to them a more lasting fertility, or, in other words, he can crop the strong marled lands more frequently than such of the same character that have not been marled.

The western part of the southern division of this District comprises parts of the parishes of Brook, Motteston, Brixton, Kingston, Chale, and the west side of St. Catherine's-hill: these all bind upon the southern coast of the island, and the strong land extends to an average width of about half a mile northwardly from the cliffs, and is composed of all the variety of soil and substrata above-mentioned.

Although the north-east quarter of this District contains a much greater variety of soil than can possibly be traced in its preceding sections, still the greater prevalence of strong land, requires that it should be included within this District. Proceeding, therefore, through the northern parts of the parish of St. Helen's, and continuing our examination westwardly, between the foot of the chalk-downs and the north-east shore of the island; after leaving the sand and gravelly loams which compose the soil in the eastern extremity of the island, we enter a country abounding with much variety of soil and substrata, but which may be generally characterized as oak tree, or sour woodland clay. The sand and gravelly veins which intersect the clay lands in various directions, seem only remarkable for affording in their vicinity slight modifications of the stronger clay. In the parish of Binstead it is much used for the making of bricks. A greyish loam, calcareous in no small degree, is here employed as a manure upon both the stiff and lighter lands.

A strong clay loam forms the upper covering of the northern extremity of the island: this is frequently found to cover a stratum of argillaceous marl, below which is generally found a body of freestone rock, easily quarried, and rendered extremely valuable for the purposes of building. A sand and gravelly loam very frequently occurs, to break the continuation of the stronger lands in the parishes of East and West Cowes, Northwood, and Whippingham; but these variety very often occasion springs, and on the sides of the hills much wet and weeping land.

DISTRICT VII.

The general character of land which is found to abutt on the two first divisions of this District is, in the first place, that in the north-western part of the island, called grist or quarry land. The top-mould here is of a light, dry, and friable nature, upon strata of white, yellow, and red sand; and in which are found loose masses of stones of a porous nature, yet very useful for the purposes of building. Descending the chalk-hills, towards the southern coast of the island, they become skirted with a red sandy loam, of a highly fruitful quality, which combining with stronger land of the same colour and in about equal quantities, extend from the foot of the hills, and connect with the stronger lands upon the coast.

The mixing of the clay and sandy loam together has been found to answer a valuable purpose, particularly in the effective manner practised by Mr. Arnold, of White Court, who seldom applies less than 2000 bushels of the red sandy loams upon the tough brown clays per acre. This is found to render the clay loams more open, loose, and friable; and the lighter lands in the same quarter have been much improved by the application of chalk with the strong brown loam, and in an aggregate proportion of 20 waggon loads (*i. e.* ten of each) per acre.

This free sand and gravelly loam continues along the southern side of the chalk hills, including the opening of the valley in which is situated the neat village of Shorwell; and thence continued northwardly along the sides of the Downs through Catcomb, the higher and more northern parts of which are found to lie upon a freestone rock, among which were frequently observed detached fragments of mine or ironstone.

In this division of soil must be included the sand and gravelly hills which skirt upon the chalk downs of Arreton, and run thence eastwardly towards Brading. At the foot of these downs lies a tract of rich sandy loam, on a tender freestone rock; and a gravelly loam upon a mild clay or brick-earth: here chalk was formerly applied with considerable effect, but of late years the old chalked lands have not been found to receive a second chalking kindly. This tract extends westwardly, and unites with the land before described on the west of the Medina river, and continues south to the foot of the northern points of the hills of Appuldurcomb, Whitwell, Bonchurch, and Shanklin: it is generally of a bright hazel, or rather cedar colour, and well adapted for the culture of pease, wheat, turnips, barley, and clover.

Although the nature of this country generally will justify the high estimation in which it is held by the inhabitants, it is not without some morass and spongy places; the principal of which is a tract of several acres on a western branch of the Medina river, heading upwards towards Bellingham-house. Some heaths and commons also occur in this part of the District, capable of much improvement by enclosure, subsequent draining, and cultivation, of which the waste upon which the lodge called Queen's-bower is situated, furnishes a principal example.

A variety of soil and substrata are found on the promontory of Yaverland, the leading distinctions of which are: upon its eastern division (and which must necessarily be included within this District) a free hazel coloured sand and gravelly loam prevails, on a similar subsoil, bounded westwardly by a continuation of the chalk downs of Brading, and terminating southwardly at a place called Culver Cliffs. Northwardly of Brading harbour, the sound gravelly loam continues through the parish of St. Helen's, affording, as is common to such lands, a very good growth of elm timber; but which, as we proceed northwardly, are found to give place to a very general growth of oak timber in the parishes of Ride and Binstead.

DISTRICT VIII.

As this District generally exhibits all the variety of soil and substrata common to other chalk countries, reference to No. II. may therefore be had for all such particulars; it may be however proper to notice, that on the east side of St. Catherine's-hill, in the parish of Niton, lies an open common field, the soil of which in its higher parts, and adjoining the sheep downs, is composed of a light brown flinty loam of a good staple, and lying at various depths upon the chalk rock, well calculated for the culture of wheat, barley, oats, and clover. Lower down, and approaching the village of Niton, a strong grey tenacious loam of a good staple occurs, on a chalky rubble, and which intercepts it at some distance from the bed of chalk below. This forms a choice tract of wheat land, and is continued with various shades north of the village, until the chalky character is lost in the sand and gravelly loams before noticed.

Ascending above the broken grounds of Steep-hill, the craggy rocks which constitute, with the vicinity of the sea, the wild scenery and picturesque views of Under Cliff, a tract of cultivated land spreads over a depressed part of the Downs, the soil of which is a thin, grey, rubbly, and brown flinty loam upon a chalk and chalk rubble, but which gradually deepen their staple and improve their quality, as you approach the demesne of Appuldurcomb. This enclosure possesses almost all the variety of soil and substrata common to the adjacent districts; and as the prevailing character of the lesser hills at Shanklin, and in the parish of Brading, generally are of a sand and gravelly nature, and this continuing north-eastward towards Sand-down Fort, they are necessarily to be included within the preceding District.

The chalk downs of Brading and Arreton, form an unbroken range from Culver Cliff to the valley which divides them from Staple's-heath: those of Gatcomb and Shorwell are intersected from the western chain by a highly cultivated valley, which extends from Shorwell to Newport. The character of a chalk down hollow, with its usual accompaniment of flat broken flints and some veins of red pebbly gravel, pervade this pleasing vale, the sides of which are found of a chalk and flinty loam, and which continues through the eastern division of the parish of Swainston, and the greater part of the long and scattered parish of Carisbrook, terminating northwardly in the neglected soil and coarse cold substrata of Parkhurst forest.

From the vale of Shorwell, westwardly, the chalk downs only afford three gaps or carriage-roads, included in which, is the passage between the head of the Yarmouth river and the innermost cove of Fresh-water Bay. The high down which rises westward from this isthmus, forms the western extremity of the island, and upon which the light-house and signal-staff are erected.

General.—The soil of the marshes and low grounds enclosed and depastured along the sides of the Yarmouth river, the inlets of Shalfleet and of Newton, the borders of the Medina river, between Newport and Cowes, the banks of the Wootton and Ride rivers, and the embanked marshes above Brading harbour, is composed of a tender hazel-coloured loam, lying in some places near a blue, or rather black sea clay, but more frequently intercepted from it by a body of coarse sand, or fine gravel; rendering the top-soil more dry and porous; and which, from its superior warmth, affords an earlier vegetation in the spring, with a much richer and sweeter herbage.

The surface mould of the low grounds and meadows bordering upon the higher parts of these streams, and generally out of the reach of any sediment deposited by the tidal waters, is valuable in proportion to the adventitious matter which in remote ages have washed from the surrounding hills, and contributed to the forming of the soil of such vallies. Towards the heads of these branches, particularly such as have their source in the clay and gravelly districts, and frequently near the foot of the hills on the lower parts of such streams, and where due attention has not been paid to draining, wet and weeping places were observed; in the vicinity of which, as usual, morass, and small portions of peaty earth, have gradually accumulated.

SECT. IV.—MINERALS.

The mineral substances found within this county are but few. A quantity of what is called copperas stone, was formerly collected on the southern shores of the Isle of Wight, and sent to the copper works to be smalted. Alum has also been made in some of the western coves of the island, but neither the gathering of the copper-stone, or carrying on the alum-works, appear to be at all attended to at the present time. No other description of minerals were heard of or noticed in the county, save in a few instances the casual occurrence of ironstone, which in the woodland district sometimes appeared, but no where of sufficient value to render it an object for the purpose of manufacture.

This was also the case in the red sandy loams lying on the south side of the Downs in the Isle of Wight, and extending through parts of the parishes of Brook, Motteston, Brixton, Shorwell, and Gatcomb.

A solution of this mineral is found frequently to give a reddish hue to divers strata of sand and gravel, and to pervade in very small strikes all the woodland clay. The morass and peaty grounds also discharge a strong chalybeate water.

On the southern shores of the county, particularly the coast of Beauley manor, ironstone was formerly gathered in some quantity: this, it seems, was generally rolled up by the surf; and such was the eagerness at those times for collecting this mineral, that even in wheat harvest the fields became abandoned, and the shores were thronged with people, who gathered and conveyed it to the iron-works at Sowley. Whether this material is no longer washed up in sufficient quantities, or that there is procured for the Sowley works a more regular supply, was not, from the absence of Mr. Pocock at the present smalting works, satisfactorily understood. At all events, the present practice of gathering the ironstone along shore is greatly, and in most places totally discontinued.

Between Milton and Christchurch, a hard reddish stone is found, which has all the appearance of innumerable marine shells coated with an oxyde of iron; of this several ancient structures in the country are built, among which is the parish church of Hordell.

The only difference that appeared to exist in the great body of rock chalk, is that of the white and the

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the grey stone: the first when burnt into lime, falls into a clear white powder; the second into a cream-coloured powder, and is particularly applicable for a cement in water-works. The grey chalk is raised in large quantities near Petersfield, and is transported from the Sussex hills, a distance of fifteen miles, to Portsmouth, and where it is burnt into lime for the use of the Royal Dock-yard.

A great variety of potters' clay occurs in different parts of the county. At Cowes it is worked to a considerable extent; and under Pool-heath it is found of various depths of from ten to twenty feet. Several trials have been made to form this clay into artificial stone for moulding and statuary purposes, for the coarser kind of earthenware, and for making of bricks; and for all these uses its different qualities seem admirably adapted. In most respects it seems to correspond with the Purbeck clay; but its distance from a secure shipping place, with the thinness of such veins as have hitherto been discovered, affords little reason to expect that it will ever become an object of much concern in a manufacturing point of view. This clay varies in its colour from a brown to a dead white; it is all convertible into a beautiful white brick; but hitherto no attempts have been made in applying it as an alterative manure on any of the extensive sand and gravelly heaths in that part of the county.

The plumb-pudding stone, apparently composed of indurated sea mud, sea shells, and an oxyde of iron, is found in large quantities near Sand-down Fort, in the Isle of Wight: it is much used in buildings, for paving, and for flooring-flags.

A vein of white sand is found in Alum Bay, at the north-west end of the island, and is much in demand for the glass-works of Bristol, Liverpool, along the west coast of England, Scotland, and throughout Ireland. In working this vein (which is little if at all inferior to the Lynn sand), the utmost care is taken to free it from every particle of calcareous earth, and which, from its situation in the chalk cliffs, requires the most unremitted attention on the part of the workmen; for a very small portion of calcareous earth is well known to prove highly injurious to a whole pot of metal. This stratum appears to hold nearly an easterly course along the northern foot of the Downs, but is there much broken by the occurrence of other veins of sand and gravel possessing many colours, and among which are found the grist or quarry stone.

This stone possesses a yellowish grey colour, is found in detached pieces, and rises in irregular fragments easily broken when first taken out of the ground; but from exposure to the air, becomes hard, and capable of resisting the penetrating force of the south-westerly storms. It is generally esteemed a very good building stone, and seems chiefly composed of the remains of marine shells in a more or less stage of dissolution, agglutinated by some alluminous substance in such a manner as, after exposure for some time to the air, it has all the appearance of a hard petrified sponge or impenetrable pumice-stone.

A strong building stone, incrusted with a red or brownish kind of ochre, rising in cubical fragments, and when broken usually exhibiting a smooth and liver-coloured appearance, occurs under the sandy loams in the parishes above noticed, as situate on the south side of the chalk hills, and affording some small specimens of rich ironstone. A solution of this metal has most probably entered into the composition of this stone, and communicated the uniform texture it possesses over the stone last described, and in which there are also to be traced the impression of marine animals; but it has not such a porous or honey-combed appearance as may be noticed in the grist or quarry-stone.

A rough calcareous freestone is frequently found in the marl-pits in loose detached pieces, and which being easily worked when first raised, is found useful for building, and filling covered drains. Query, were this stone pounded, and applied to the strong brown loams, would it not operate powerfully as an alterative and feeding manure? the first by its mechanical action in these tough strong loams, the second from the quantity of animal gluten which unquestionably remains still locked up in the undissolved shells, but which being pulverized, would become more susceptible of dissolution, and that by a more diffuse contact with the acids of the soil.

Near the junction of the light and heavy land, east of Staple's-heath, and north of Arreton Downs, a close grey limestone is found, intercepted with beds of an indurated substance, consisting altogether of an assemblage of small marine shells, preserving their natural colour, which is a yellowish grey, and perhaps like the grit or quarry-stone, owe their union and consistence to the presence of the cementatious principle of alum; a substance which is well known to pervade the western parts of the island.

A freestone rock is found sometimes under a bed of marl in the northern parts of the island, and being easily quarried, is much resorted to for buildings, particularly in the neighbourhood of East and West Cowes.

It is observable along the clay, sand, and loamy cliffs which form the southern shores of this island, that considerable encroachments are annually making upon them by the sea. Of all the materials with which this general line of coast is composed, there is none which so powerfully resists the lashing force and sapping effects of sea-water, as chalk. The western extremity of the island, the foot of St. Catherine's-hill, along to Dunnose, and the projecting cliffs of Culver, are all evidences of this truth; and which hitherto have resisted the utmost fury of the waves; whilst the bays of Freshwater, Brixton, Chale, and Sand-down, have been all scooped out of the island by the force and undermining power of the ocean; an effect which will gradually continue until the whole of the loam and sandy districts are ground and swept away, to the very foot of the now interior chalk hills.

That this event is not at so remote a distance as might at first be imagined, particularly on the south-western coast between St. Catherine's Point, and the chalk rocks at the Needles, is clearly what we learn from many of the oldest inhabitants, who readily point out particular stations along the cliffs, which show that in their memory the general range of coast extended at least an hundred yards to the southward, and beyond the line of its present continuation. The ridge and furrows which exhibit an ancient cultivation over the whole surface of the present low and loamy cliffs, and the improvement which this strong land formerly underwent by chalking, are farther evidences of this invasion of the sea, should it be at all necessary to adduce them. This operation, however, between Dunnose and Culver Cliffs, appears to have terminated in Sand-down Bay, by a bank of shingle which has been cast up by the surf in the bottom of that bay, and thus forms a barrier against the farther encroachments of the sea in that quarter.

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SECT. V.—WATER,

Is in general excellent. The principal streams and rivers in the county being already described, it only remains necessary in this place to speak of the quality of their waters, which is various, but which may generally be enumerated as follows:

Those which predominate in all the woodland parts of the county, are of a strong chalybeate nature; and however they may be adapted to some cases and constitutions, are neither grateful to the palate, possess a cleansing quality with soap, proper for ordinary kitchen use, or commonly approved of for the purpose of irrigation.

The springs which issue from sand and gravelly strata, are infinitely more grateful to the palate; but they possess a peculiar hardness, which is much objected to by housekeepers. They are frequently employed in watering meadows, and for which purpose nothing particularly objectionable has been stated against them.

The water which rises in the chalk district is particularly pleasant to the taste, and is applied with admirable effect to the purposes of irrigation. Soap is certainly not so miscible in this as in rain water; and therefore it cannot possibly be expected to possess the same cleansing or detergent quality. Those families, however, that have removed from the clay and gravelly districts, find great advantage in the general use of calcareous water.

The water issuing from bogs and swampy ground, seems charged with a solution of iron and vegetable matter, in a state of mechanical suspension only. This latter deposited in a yet insoluble state, answers but feebly the double objects of irrigation, viz. warmth and nutriment; but as it must, to a certain extent, be of use in preserving the irrigated surface from the severity of winter, it ought not, perhaps, on all occasions to be improvidently discharged from performing so important a service. For domestic purposes, unless for scouring with sand, this water is altogether useless.

In the strong loam and woodland clay districts, the want of a regular supply of water during a dry season is often very severely felt, and even the little which may be procured at such times, is found to have a most deleterious effect upon the human frame, and by no means favourable to the health and well-doing of sheep, cattle, and farming stock in general.

The want of a regular supply of water during the continuance of dry weather, in the chalk districts, is an inconvenience still more generally experienced, although the little which may be occasionally procured is of the best and most reviving quality. To remedy this evil, ponds are constructed at great labour and expense, for the purpose of retaining the downfal waters, as a supply for both sheep and cattle. These are bedded with the most retentive clay or loam that can be conveniently procured, and paved within and above their upper sides with large smooth flints, as well to prevent poaching in wet weather, as to secure it as much as possible from the action of the frost, which once penetrating the made ground, it becomes porous, and up by the surf in the bott- … forms a barrier against … sea in that quar- … and incapable of remaining water would it is again recovered.

In such situations as are out of the reach of a constant supply of water from brooks, rivulets, or streams, tanks and reservoirs are also constructed to receive the rain water from the dwelling-house and buildings; and here wells are sunk from one to three and four hundred feet in depth, through the solid chalk rock, and which in a dry season affords a supply for domestic use, as well as for the sheep and all the farming stock of the occupation. Whole villages are thus frequently supplied with water, drawn up in large buckets by a tread wheel; but even this supply in the month of October will sometimes fail, when all the inconvenience and distress of such a situation may very easily be imagined. In some instances it has been known, that a continuation of dry weather during the autumnal months, and even after the great demand of harvest, will have left more strong beer than water within the boundaries of a parish: in such situations, the labour and expense required to supply the family and a part of the stock with water-carts, is absolutely incalculable; every endeavour, however, is constantly employed to mitigate the evil attendant on the failure of so important a necessary of life; but which all the high downy parts of the chalk district are to a greater or less extent subjected, that are not visited by water-courses, or lie within the reach of permanently living streams.

All the country abounding with sand and gravelly veins, may in general be considered as well watered.

SECT. VI.—FISHERIES.

WHATEVER may be yielded to the public through the exertions of the maritime fishermen of this county, certain it is, that a small portion only of the fish they take is consumed within the county; and even of that little, a very small part by its rural inhabitants. Southampton and Portsmouth afford tolerable fish markets, but the other maritime towns, as well as the larger ones in the interior of the county, receive only a casual supply, and that not only excessively dear, but generally of that inferior sort and quality, as would not be likely to pay for its carriage to the metropolis, and for which purpose light waggons are constantly kept flying on the roads, particularly that which leads from Portsmouth, through Petersfield and Guildford, to London.

In all the rivers and inlets discharging into the sea, salmon are caught in their season: this fishery, however, is by no means so productive as formerly, particularly in the great supply that was drawn from the Southampton Water: this must be ascribed to the caprice of the animal in quitting its former haunts, and certainly not to the destruction of the young fish on their return to seaward in the winter season.

Whenever the waters of the Teste, Itchen, Avon, and their smaller branches, become turbid from heavy rains, a number of eels are taken at the different mills seated on these water-courses, and which seem to furnish the only small supply of fish aliment to the neighbouring inhabitants of those streams. Though well flavoured, they are in general by far too small.

As far as it goes, a very excellent use is made of some of the low places on the heaths of Bagshot, Cove, and Frimley, by dams which are raised across the hollows occurring on such heaths, and in such situations as are deemed favourable for the purpose. The downfal waters being thus arrested, ponds of various extent are formed, corresponding with the width and inclination of the bottom of the ravine or hollow, and the height of the dam over which it may be made. This dam is always puddled about four feet thick along its centre, the puddle work entering the sides and bottom of the hollow: it is supplied with a sluice or floodgate, and a proper weir to discharge and carry off its redundant water. These ponds, stocked with tench and carp, pay beyond all reasonable calculation: London, as usual, is the great mart for these fish, and which generally takes off about three-fourths of the grown fish, and of those that are ready for market.

CHAP. II.

STATE OF PROPERTY.

THE largest estates, as well as the most extensive occupations, are found in the chalky parts of this county. The highest individual rental of lands lying within the county, was not understood to exceed 8000*l.* per annum. Much of the land in the county has undergone a transfer of late years from its former owners, and in which have been included some very large and valuable estates. A considerable subdivision of property has also taken place, and which may in some measure be referred to the following causes.

The mildness and salubrity of the climate in the first instance, particularly along the sea-coast, and this frequently proving the first shore in the united kingdom which receives the long absent trader, or those who may have spent the early and prime of their lives in the naval or land service of the country, or in the exercise of civil employments in its possessions abroad —here they renew more intimately the cordial intercourse with their family and friends; and thus a predilection is created for the spot where those emotions become realized, the enjoyment of which, had most probably for many years been the subject of their fondest expectations, and proved a principal incitement to those exertions with which their respective careers may have been marked, whether in a civil, military, or commercial capacity.

To this must be added, the convenient distance at which this county is situated, and the facility which that locality of position affords, not only of daily communication with the metropolis, but often of the heartfelt joy of hailing the first return of other friends from abroad; and of preparing and accompanying the young adventurer to the place of embarkation, for the purpose of following the same steps, and emulating the example of his parent, relative or friend. Considerations of this nature most probably contribute to determine the choice of such visitors, and those the least connected with a landed interest in other parts of the united kingdom: hence the unceasing demand for villas and small estates, the subdivision and frequent transfer of landed property, upon which, from the nature of the improvements that have been carried on, a far more valuable and productive property has been created, than could possibly have been expected had the country in these respects been otherwise circumstanced: and hence, also, Hampshire has in a manner become the depository of the acquisitions of the industrious merchant, the learned advocate, and of the bravery and skill of the naval and military character.

The Royal Dock-yard at Portsmouth, the rendezvous of the fleets, and in war time the depôts of military levies, the roadsteads for assembling convoys, furnish, with its ordinary consumption, and the supplies demanded by the metropolis, high and immediate markets for all its agricultural produce; and thence the skill and industry of the yeomanry and farmers in the county are carried on in many instances to a pitch of agricultural excellence, as is perhaps unequalled in any other part of the British islands.

The great bulk of the lands in this county, is held and cultivated in a general sense by the yeomanry occupying their freehold, copyhold, or leasehold possessions; and the usual farming tenantry, all of whom, unless it is the freeholder, occupy and hold their lands and tenements under superior lords. In these, the right or ownership of the country is so placed, as to empower them to grant some one or other of the following,

SECT. I.—TENURES.

TENURES are various. Those estates which are supposed to have formerly composed a part of the demesne lands of the see of Winchester, are granted by the Bishop as freeholds, for, or upon three lives, and generally renewed to the families in possession for many successive generations. The fine on renewal varies, from one and a half to one and three quarters, and two years improved rent, valued by competent persons in the vicinity. These estates chiefly consist of ancient manor farms and houses, and to which certain feudal rights still appertain. In some cases, the timber on these estates has been reserved to the use of the see, allowing only a sufficiency for repairs, with the bark, top, and lop, of the same; in others, the whole was originally relinquished to the tenant family, who consider these estates as tenancies for life, renewable for ever on the terms above stated.

Copyhold tenures, or lands held by copy of court roll, are granted from manors vested in the church, other pious foundations held in mortmain, and the nobility, gentry, and lay proprietors of the county.

They are of several kinds, such as copyholds of inheritance, with a fine small and certain on alienation or death, customary, which refers to the usage of the manor, whether the fine on such occasions is paid by heriots, or commuted for a former specific sum, or arbitrary, and which latter often involves the tenant in a situation he by no means approves of: these tenures are granted by the Bishop of Winchester, the Dean and Chapter, the Warden of Winchester College, the colleges of the respective universities, other public and private bodies, and nearly in the following manner:

A valuation of the net annual rent of the estate is made, and upon that data, two years' purchase is demanded for one life, with the benefit of widowhood; eight years for two lives, with the benefit of widowhood; sixteen years for three lives, with the benefit of widowhood.

Leaseholds, or lands held on lives by lease or indenture, also derived from the preceding sources, and which upon renewal, the net annual value being previously ascertained, pay two years' purchase for one life, seven years for two lives, fourteen years for three lives, with a small annual reserved rent, which varies according to circumstances, but is generally considered to apply a just equivalent to both parties.

Leases for terms of years are also granted by the aforesaid authorities; these are generally for 21 years, renewable every seven, with a fine of from one and a quarter to one and a half yearly value.

Leases also for 21 years, determinable every seven, by a twelvemonth's notice from either party: here the annual reserved rent is supposed to be a full equivalent for the occupation.

Leases of 14 years (absolute), sometimes occur; but here it is much to be regretted that these, as well as leases for 21 years, are getting much into disuse, there being several estates in the county held at will, and thus constituting an evil which the Surveyor is concerned to remark as very much increasing.

The four-course husbandry prevailing (that is, two years' crop, with one and a half years' grass, and half a year fallow, or the third year grass, and fourth year any other green crop in preparation for wheat) upon a large proportion of the land in the southern parts of the county, leases for three series, or twelve years, were found very frequently to occur.

SECT. II.—BUILDINGS, REPAIRS, AND COVENANTS.

UPON tenures for lives or years, whether freehold or copyhold, the buildings being conceived as originally sufficient and in good repair, are kept in that state by the tenants, rough timber only being supplied from the estate for that purpose.

Upon occupations held at will, or for terms of seven, twelve, fourteen, or twenty-one years, the repairs of buildings, cartage of materials, thatching and glazing excepted, are sometimes, though rarely, done by the landlord, the more general usage being for all the old established and new necessary buildings to be put in good repair for the incoming tenant, who being afterwards supplied with rough timber, including weather-boards and flooring plank, bricks and tiles at the kilns, stones at the quarry, and lime at the kiln, is bound to keep them in the same condition during the continuance of his occupation; but although the whole of the workmanship is thus often covenanted to be performed by the tenant, its being so little attended to towards the conclusion of the lease, subjects the estate, at those periods, to be often quitted under an appearance of great ruin and dilapidation.

The reservations and covenants generally provided in leases of this nature are, that all and all manner of timber trees, and trees likely to become timber, saplings, bodies of pollards, and other trees standing or growing upon the premises, are to be preserved. The landlord to enter at all reasonable times of the year, as well to view as to fell, stock up, work, dispose, cart, aud carry away, all such trees, with the bark and wood thereof; but in case damage is done to the tenant's corn during the landlord's access, by himself, or his servants, carriages, &c. reasonable and proper satisfaction for all such damage is to be made by the landlord to the tenant.

Also reservation to the landlord for hunting, coursing, fishing, and fowling, over, in, and upon the demised premises, or any part thereof, at the same time he is prohibited from committing any wilful spoil or waste.

The tenant generally enters at Old Michaelmas, and covenants to pay his rent yearly or every half year; and to prevent the wanton destruction of the old prime pasture land, 20*l.* per acre annual rent is demanded as a compensation from the tenant, for his breaking up, without permission obtained in writing, any meadow or old pasture grounds.

The tenant is also restrained from subsetting the premises, or any part thereof, without a written permission for so doing.

He generally covenants to pay and discharge all manner of dues, duties, rates, taxes, payments, assessments, and other impositions, ordinary and extraordinary, land-tax and quit-rents, if any accruing, only excepted.

The tenants usually covenant to keep in repair all fences and buildings, they being first put into good tenantable condition, and rough timber, brick, stone, and lime, being allowed by the landlord for that purpose (except straw and glass), and for which 40 days notice is generally required from the tenant to the landlord to provide them, and which supplies are applicable to all repairs of damages done by fire, tempests, or inevitable accidents, without the wilful default or neglect of the tenants, his servants or workmen, always excepted.

The tenant is also bound not to grub up or destroy any of the trees or stools, to top, lop, bough, or shroud, any of the timber trees, heirs, or saplings, on the premises; or at any unseasonable time to top any of the pollards, fell, cut down, or plash, any of the hedge-rows and underwood on the farms, and which in some places are not to be cut under nine and over eleven, in others, not under twelve or over fourteen years' growth, and first giving one month's notice in writing of the tenant's intention of so doing, in order that the landlord may order, mark, and set out, any heirs or saplings, as he shall think proper, and which shall be preserved in future, and in nowise cut, prejudiced, or destroyed.

The crop is generally provided to be expended on the premises, but when hay or straw is sold, a proportionate quantity of stable dung is required to replace such draughts of the essential means of preserving the occupation in heart and good condition. Three waggon loads of dung are not considered as more than equivalent for each load of hay or wheat straw sold from off the farm.

The crop of the last two years of the lease is required to be wholly expended on the premises.

On some of the light down farms in the chalk district, the tenants are sometimes restrained from taking more than two crops in five years. A certain proportion of the distant lands upon these farms, is subject to a course of tillage; from one-sixth to one-tenth part of these light and remote lands, are commonly required to be left under sainfoin, not exceeding the growth of two years, the value of which is to be paid to the outgoing tenant by his successor.

In the open-field part of the county, or wherever there is any common meadow, attention is particularly demanded of the tenants to the preservation of landmarks.

The incoming tenant, after the 1st of May, is permitted to enter upon the two years' lay, and to carry out all such dung and composts as may be in readiness for turnips; to cast up, turn over, and prepare such other parts of the dung, for his wheat land to be sown at Michaelmas, and before Christmas.

Grass-seeds are permitted to be sown with the Lent corn of the outgoing tenant, and harrowed and rolled in by him, limiting the number of acres of broad clover, from its sometimes proving injurious to the crop.

A specific number of sheep are and ought always to be required to be kept, and which in the last year of the term are to pen off, and fold as usual, upon

COMMON HAMPSHIRE GATE.

Fig. 1.

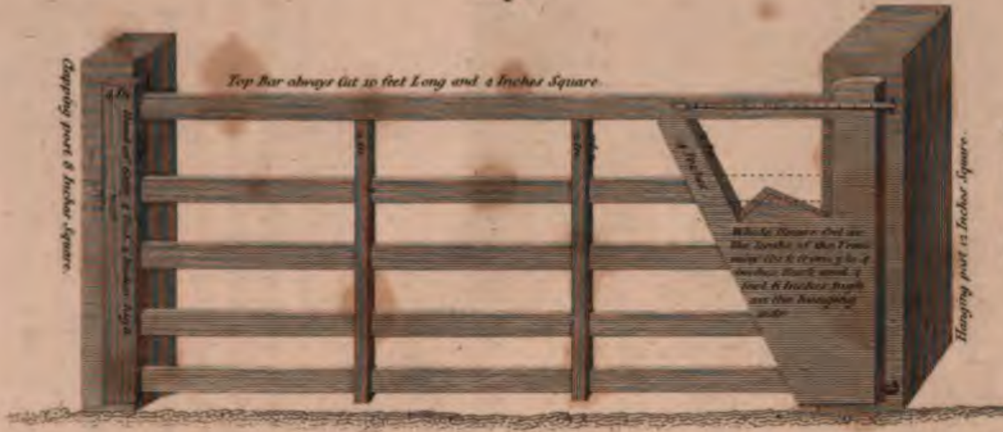
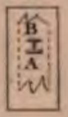

Top Bar always Cut 10 feet Long and 4 Inches Square
Clapping post 8 Inches Square.
Head of Gate 4 Feet 4 Inches high
Hanging post 12 Inches Square.
4 Inches
Whole Heads cut as the Stroke of the Frame may [illegible] 3 to 4 Inches thick and 4 feet 8 Inches high as the hanging side

Fig. 2.



Scale ½ an Inch to a Foot.

Published Jan.y 1st 1810, by Rd Phillips, New Bridge Street.

Neele sc. 352 Strand

which are allowed to be taken after Midsummer, in the last year of the term: this [illegible] usage of the [illegible] [illegible] is, however, usually limited to a very small extent.

Gates with their irons, hanging and clapping posts, smaller posts for rails, gates, doors and other fences, are supplied (without rough timber by the landlord); but cartage, and all other charges are defrayed by the tenant. (*Vide Plate I.*)

The gate here represented, has various fastenings, but the one preferred by Mr. Budden, and many other gentlemen in the southern parts of the county, is to let the staple A, about two inches long, into the clapping-post flush with its front side, for the purpose of receiving the catch or hasp B, which is let into the head of the gate on its inner or clapping side, projecting no more than is required for keeping the head of the gate close to the clapping-post. This contrivance effectually secures the gate, at the same time that it keeps it from swinging, as expressed by *Fig. B, Plate I.* When the [illegible] is [illegible], the second bar from the top passes through it, in the direction of the dotted lines.

The expense of this gate is as follows:

First cost,	15s.
Irons,	4
Hanging-post,	3
Clapping-post,	3
	25s.

Including spars.

The conditions agreed to, and the tenures sometimes granted on the wastes that have recently been enclosed in the southern parts of the county, are, for the improving

proving tenant to pay the full expense of the bill, working the commission, and completing the enclosure; to pay a reserved rent of 2*s*. per acre during the continuance of the first life, 3*s*. per acre when the first life falls in, and 5*s*. per acre when the second life expires; and on the termination of the third life, 7*s*. per acre for a lease of 21 years. The land, during the whole time after the expiration of the first seven years, is subject to the payment of the great and small tithes.

The old tenants commonly retain possession of the barns for the convenience of thrashing out their crops, and are usually indulged with a homestead, as an outlet for their cattle whilst feeding upon the straw; but the premises are always cleared from the whole of the former establishment by the beginning of the ensuing May.

In some cases a specified number of acres are to be left in a husband-like tilth of fallow, for the use of, but without remuneration from, the new tenant. In the down districts a certain number of acres of sainfoin in good plant, say two years old, are left in like manner, and without compensation from the incoming tenant. Sainfoin and other hay, as well as turnips, are consumed by the stock of the outgoing tenant, or taken by his successor at a fair valuation; and in all these circumstances, which rarely occur, the latter proceeding is generally adopted; at all events, these crops, as well as the dung proceeding from the outgoing tenant's crop, are uniformly required to be expended on the premises.

In other cases, it has been customary for the incoming tenant to enter upon a part of the occupation in the month of January (preceding the termination of the lease that is to expire the ensuing Michaelmas), for the purpose of preparing turnip fallows.

It has already been observed, that the hay and straw produced upon the farm, should be expended on the premises, or in return for what may be sold off, proportionate quantities of dung should be brought on. The facility, however, with which town manure is procured, and the great use which is made of it in most parts of the county, render this provision in a manner unnecessary, particularly with those who have an interest of some future standing in their farms; but among tenants at will, and towards the end of a lease, this covenant either is or ought strictly to be attended to.

In the Isle of Wight the great bulk of the land is freehold. The copyholds chiefly consist of small tenements; and although the College of Winchester, and New College, Oxford, have some property near the middle of the island, it does not appear that there are any church demesnes upon it. The largest individual income accruing from lands in the island, is not supposed to exceed 5000*l.* per acre. Leases for 14 and 21 years absolute, have been very judiciously granted of some of the principal occupations in the island; and with regard to other species of tenure, they may be generally referred to what has been already stated on those subjects with regard to the county at large.

CHAP. III.

BUILDINGS.

SECT. I.—HOUSES OF PROPRIETORS.

THESE are numerous, including villas. In the early inhabited parts of the county, and where no afforestation has taken place, remains of strong roomy and superb edifices are still to be seen; few of them, however, in the present day, exhibit any thing beyond a faint resemblance of their former grandeur. The demesnes in which they were situated have fallen into the hands of a more numerous proprietary, and hence the moted castle, and solitary Gothic pile, have given place to a style of building more consonant to the present state of society; and mansions less splendid and imposing, but more numerous and convenient, have been raised, with all the studied arrangements for internal accommodation, embellished with whatever contributes to heighten the effect of modern architecture, embosomed in lawns and woodlands, adorned with water, and all the improved taste and excellence of rural designs.

A number of elegant seats answering this description, were observed in different parts of the county, and to compose a part of the beautiful scenery of the Isle of Wight; and where, with the number of neat and elegant villas dispersed through the other parts of the county, an idea is conveyed of opulence combined with use and ornament, in so high a degree, as to leave no question whatever on the mind of the passing traveller, as to the eligibility of such houses for their respective establishments, and also that they have been as well planned, and as elegantly constructed, as the circumstances of their situation could possibly admit of.

SECT. II.—FARM-HOUSES,

Did not challenge any particular attention as to the excellence or defects of their conveniences. They are mostly of great antiquity, and those in the occupation of the larger farmers were formerly grange or manor houses; in the construction of which there appears to have been originally but little design, and in the appropriation of their present apartments, no farther order than that which seems to accord the best with the comfort and convenience of the family.

SECT. III.—OUTBUILDINGS AND OFFICES,

Even upon large and compact occupations, appear unnecessarily numerous, and are too frequently seen in a state of great ruin and decay; this, however, is an evil which is gradually expected to cure itself, from the introduction and more general use of thrashing-machines.

When a recent consolidation of small farms into one large one, or where many small and detached farms have fallen into the occupation of a single family, the abandonment of the old dwelling-house, in such cases, is no less unpleasant to view, than it is hurtful to the general interests of the country, by not converting such small farming tenements, where the building has been firm and good, into cottages, or when too far gone to decay, not taking them down, and applying their useful materials to the building of new habitations for the peasantry of the country. When the farm-houses and offices, or any other of the buildings, are repaired with oak, a scanty supply only is afforded from the estate; but when fir, or pine, has been substituted for that more valuable material, it has generally been cultivated for the purpose; and the buildings upon all estates so circumstanced were uniformly observed in far better order.

A very excellent practice seems to be fast gaining ground in many parts of the county, of building wheat barns, as well as corn stacks in general, upon stone stands or staddles. The barns thus constructed are usually of beech, elm, and fir-boards, with oak, beech, or elm plank, for thrashing-floors; the other part of the bottom of the barn or mows may be formed of any other old and useless plank or boards. These barns are sometimes covered with tile, but more frequently thatched. Convenient doors are left at the thrashing-floors, and wickets at the ends and sides of the barn, for receiving, stowing, and filling up the corn to the top of the mows. The scaffold stones, or legs and caps (as they are usually called) are supplied from the quarries of Purbeck and Portland, and cost at the sea-ports or wharfs at the head of the Marine Navigation, about 7*s*. per pair, exclusive of the base or foundation on which they are placed, and which is either of mason-work, or of flat stones collected in the country.

country, and formed for the purpose. Connected with these barns in some situations, a thrashing-machine is erected, but carefully guarded against the ascent of vermin: under these circumstances, the expensive oak floor is substituted by one of less value, but in such situations of equal use and duration.

Within the last eight or ten years, many small farms have been consolidated in the Isle of Wight; but the general situation of farm-houses in that island, is nevertheless but little affected by it, they being generally very well chosen for the convenience of the occupation. Here there appears to be a large proportion of modern farm-buildings; but their arrangements for convenience did not seem to require particular notice. The residence, however, of many of the most respectable occupiers, is in the old grange or manor houses, formerly the dwellings of their respective proprietors, and of which notice was before taken.

The building materials in general use through this county are, stone, flint, brick, cob or mud, oak, elm, beech, and fir, or home deal.

In the construction of buildings formed of stone and brick, a very considerable error seems generally to have taken place, and which arises in placing the materials in the very opposite order to which they ought to be laid in the wall. For the sake of a neat, and what may often be called a pretty outside, the common red brick has been made to form the exterior part of the building, whilst flints, freestone, dunstone, marble, limestone, all of the most impervious structure and durability, have generally been employed in filling up, and composing the inside of the wall. It is a well known fact, that the flints of the south, and the western dun, and limestone, resist the most continued violence of the westerly storms; and where the cement is properly prepared, they are almost impenetrable by them: it is also equally well known, that neither brick, or any other absorbent body, will give out its moisture until it is fully saturated. The water absorbed by the bricks from the south-westerly rains, is transmitted by the flints, limestone, and other close and dense bodies, incapable of absorbing it, and forming the interior sides of the walls of such buildings, and thence diffuse damp and moisture over all the internal lining of the apartments of such houses so exposed and situated.

To obviate this evil, much pains and expense are often bestowed in projecting from the walls spline and lath-work, to receive the paper, hangings, or other internal and necessary substance for use or ornament, and the completion of the rooms; all, however, availeth nothing; a reservoir of moisture is already formed in the saturated bricks. This being constantly fed by the succeeding storms, is as regularly transmitted through the walls by the dense materials of which they are internally composed, and thus damps and humidity pervade the apartments of all houses so circumstanced; as unseemly to the eye, as it is unwholesome and injurious to the health of its inhabitants.

But to guard in the most effectual manner against an evil of this nature, and to preserve in the exterior of the building the beautiful white brick made upon the estate of Colonel Mitford, at Exbury, the mansion-house now erecting on that demesne, is built with a double wall, having the white bricks on the outside, and the common red within, and leaving the space of about half a brick between the two separate and independent walls. This precaution, however, is not necessary,

cessary, nor does it extend beyond those parts of the building exposed to the most violent and continued storms.

We perceive in many parts of the chalk district, and in that part of the county bordering upon Dorsetshire, a very general use of mud or cob walls. In the former parts of the county, they appear to be put up and finished with much neatness, firmness, and regularity, and cost about 2*s*. 6*d*. the statute perch, one foot high, and from 18 to 22 inches thick. The materials are all supposed to be laid down for the workmen, who temper the malm or chalk loam, mix with it the necessary quantity of straw, and which is stated to be about one hundred weight to every ten perch of walling. Sir Henry Tichborne has much of this cob wall now in hand, as well for small dwelling-houses, offices, and cottages, as for enclosing his farm-yard, &c. Chalk is here ground by a one-horse power, which works a vertical millstone that traverses in a circular trough constantly supplied with water, and which reduces the chalk to a proper consistence for the rough cast or finishing coat these walls receive, and which, when judiciously coped, and kept constantly thatched, or otherwise covered with tiles, are found in durability little inferior to common mason-work.

Cob is also prepared in other parts of the county, by mixing three parts of chalk with one of clay, well kneaded and mixed together with straw: these materials, all laid down upon the spot, with the use of a horse for treading the clay, chalk, and straw together, will cost, for the raising only, 1*s*. 6*d*. per perch: thus a wall seven feet high, with coping, will cost about 10*s*. 6*d*. per perch, besides the expense of tempering

and

and preparing the materials, and which, as above-stated, may amount to about 1*s*. per perch more.

On whose account the repairs are generally done in this county, has been already stated. The price of artisans' labour among the rural inhabitants, may be estimated as follows:

The wages of stone and brick masons and plasterers, vary, according to the proficiency they may have attained in their business, and the coarse or fine work required to be done by them, from 2*s*. 6*d*. to 3*s*. 6*d*. per day; but with no allowance of beer, unless when employed in chimney or black work. Their hours are from five to seven, when they make seven working days in the week; but the ordinary time, from six to six in the summer, and from light to dark in the winter. When brick-work is done by contract, it is measured by the square of 16½ feet, one brick and a half thick, requiring about 4500 bricks, and cost for laying only about 40*s*.

Carpenters' and joiners' wages fluctuate, according to the skill of the workmen, from 2*s*. to 4*s*. per day: their hours of work the same as with the masons, and no allowance of beer. Labourers attending on the masons, 20*d*., or 2*s*. per day will include both wages and allowance for beer. In the vicinity of all the large towns, these wages are subject to alteration, increasing according to the scarcity of hands, and the demand which such places occasion for them.

In 1794, the London artisan's wages were 2*s*. per day, and his labourer 20*d*., the stated daily labour of the country then being 1*s*. 6*d*. per day: at present, the London artisan has from 3*s*. 6*d*. to 4*s*. per day, and his attendant from 2*s*. to 2*s*. 3*d*. per day; the common wages of a good country carpenter or bricklayer, is about a guinea per week. In most parts of the county, contract-work is regulated by the London prices, and the London Book of Rates.

Sawing and hewing per 100 feet, may be stated as under:

Oak, ash, elm, beech, and poplar, under 18 inches in width of board, from *3s. 6d.* to *4s.* per 100 feet; when the boards exceed that breadth, they are reckoned for in proportion. The cross cuts are reckoned for a one-fifth in sawing, or for *2d.* each. Hewing, *1s. 6d.* per load, or two sides reckoned for one cut. Sawing old stuff, *5s. 6d.* per 100 feet.

The price of building materials vary considerably, but which may generally be rated as follows: bricks, from one guinea to *40s.* per 1000; covering tiles, *35s.* per 1000; soughing tiles, 10 guineas per 1000; lime, *3s. 4d.* per quarter; oak in the round, from *1s.* to *5s.* per foot; elm, from *1s. 3d.* to *3s.* per foot; ash, from *2s.* to *3s. 6d.* per foot; beech, from *8d.* to *3s. 6d.* per foot; fir or home pine, from *9d.* to *2s. 6d.* per foot; oak plank of two inches thickness, and raw edges, *8d.*, *9d.*, and *10d.* per foot; if squared edges, *2d.* per foot addition on these prices; elm boards, three-quarters inch, *4d.* per square foot; beech and other weather-boarding, three-quarters inch, from *12s.* to *18s.* per 100 feet; common five-barred gates, from *12s.* to *18s.* each; the same with the top rail paled, from *18s.* to *20s.* each; gate-posts, from *7s. 6d.* to *20s.* per pair, including spurs; iron work, about *7d.* per lb.; thatching, per square of 10 feet, *4s.*, spars, rope-yarn, and ledges included; drawn or yelmed straw for this purpose, *65s.* per load of 120 bundles, weighing, when dry, about 14 lb. each.

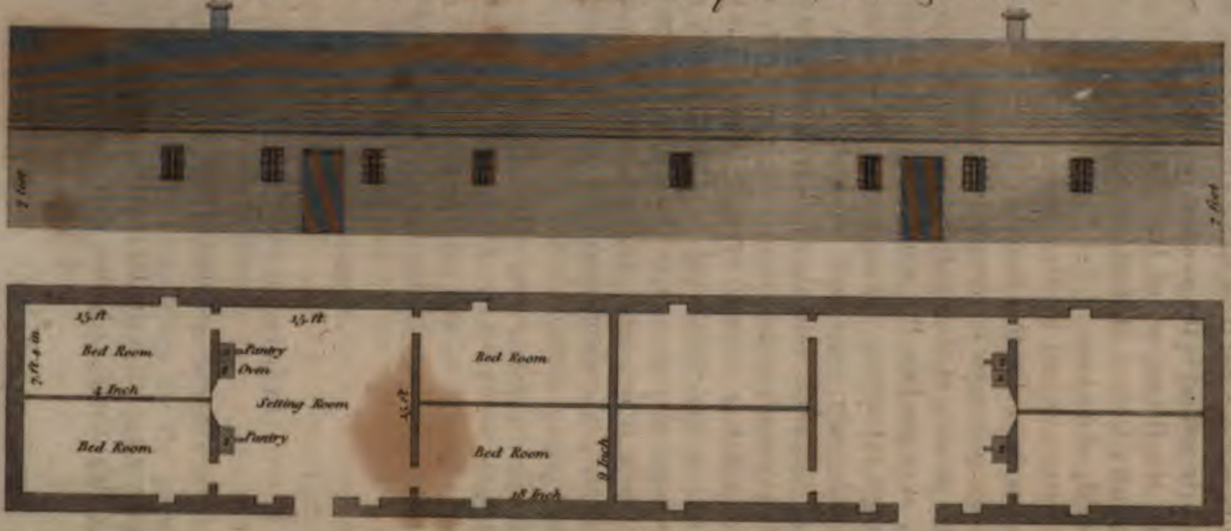
The alder and willow, burnt in iron cylinders to make charcoal for gunpowder, yield a tar which, when used as a coating to new wooden buildings, proves a great preserver to the boards and scantling exposed to the air. This has been purchased as low as 3*s*. per barrel; but even at six times that price, it is a good bargain for such purposes.

A cement, which seems to acquire additional hardness by continuance under water, has been composed by Mr. Roberts, of Abbotstone, and is much used in the neighbourhood of Alresford, and other parts of the county, where its excellence is known. It is prepared, one-eighth wood-ashes, one-eighth coal-ashes, one-eighth dry sand, and one-eighth the white, chalky, clay malm, or marl, found uniformly under the peat-moors in the vallies of that country; and four-eighths lime, procured from the grey chalk-rock in the neighbourhood of Petersfield: the whole put together and tempered a few hours only before it is used. This cement is admirably calculated for water-works, and appears to possess a strong attractive power upon the earthy parts of the water with which it may come in contact; a circumstance evinced by the incrustations left by the water in its passage through tunnels, mills, &c. built with a cement prepared in this manner.

SECT. IV.—COTTAGES.

THIS county seems generally to be much better supplied with comfortable dwellings for the peasantry, than many others in the kingdom, much attention being paid by most country gentlemen to this important

Plan and Elevation of M.^r Bramstone's Poor House Cottages,
built with Mud, or Cob Walls, and floord with Brick.



Scale 15 feet to an Inch.

ant point of accommodation and improvement on their respective estates; but those whose exertions were most particularly noticed in the progress of the Tour, were those of Mr. Bramstone, of Hall Place; Mr. Wade, of Pucknell; Colonel Mitford, of Exbury; and Mr. Wakefield, of Andover.

The cottages erected by Mr. Bramstone are of two kinds—one for individual families; the other a sort of poor-house cottage for the reception of pauper families, when the pressure of these indigents is so hard on the parish, as to preclude the whole from being supplied with single tenements. These larger cottages consist of one story only, built with cob, and covered with thatch. The inside walls are neatly plastered, as well as that of the roof, which is made close and light, and finished as high as the wind or collar beam. The kitchen, or common living-room, is 15 feet square, and from which you pass into two bed-rooms, seven feet six inches by 15 feet also. The large room is common to two, three, or perhaps four, distinct small families, consisting of two, three, or at the utmost four persons; and is furnished with a fire-place, on one side of which is placed an oven; on the other, a common pantry, fitted up with shelves, and made as convenient as the space will admit of. On the side of the oven and the pantry, there are doors of communication with the lodging-rooms. There are two windows to the common sitting-room, and one to each of the bed-rooms. Each tenement is supplied with about two square perches of garden ground; and the rent paid by the parish, or the labourer, is about 30*s*. annually for each tenement.

Single cottages on a similar construction, built with brick (Vide *Plate* II.), but with a reduced sitting-room of 10 feet by 15, floored also with brick, and finished in a close and comfortable manner, will cost about 40*l.* each, and for which, with a similar patch of garden ground, the cottager will pay about 45*s.* annually. These are supposed to be inhabited by a superior class of labourers to those (who are generally the very old and indigent) that take shelter in the poor-house cottages.

One great advantage results from these people living together in this way: many of them are old and infirm, and although disabled from doing many things as formerly, are still able to perform some small services, though perhaps of a different nature from that which they may have received from other of their inmates. The assistance they thus mutually afford to each other in illness, and other offices of a kind and humane nature, being voluntary, or inspired by their different wants or wishes, are uniformly more grateful in their exercise, and continued with much more alacrity, than it would be possible to expect, were they performed as a task of duty, and imposed upon them by superiors.

Though there does not appear to be any thing in the construction of Mr. Wade's cottages that require particular notice, still the number he has built, and the many conveniencies with which they are all provided, entitle him to the fullest praise, for thus contributing, and that in so ample a manner, to the comfort of the neighbouring peasantry.

In addition to the interest felt on entering the country south of the Buckholt and Houghton Hills, the beautiful scenery of the woodlands becomes much increased by a number of neat red brick cottages, and some in imitation of stone, that adorn the way-side through the Titherlies and Lockerly, on the way to Rumsey. The Surveyor was very desirous of procuring a plan and estimate of those improvements; but it was with regret that he learnt from Mr. Wakefield, that it was out of his power to oblige him.

Colonel Mitford, of Exbury, has also erected several new and convenient cottages. In placing these buildings, the Colonel has had it no less in view to prevent the appearance of any nuisance from the street, than to supply each tenement with a sufficiency of garden ground; he has therefore turned the rear of these cottages upon the street, and their front upon the gardens: these cottages are also built on the weather side with a double wall. A plan, elevation, and estimate of their expense, he has obligingly promised to communicate to the Board.

There are but few farms in the Isle of Wight that have not cottages attached to them. This affords considerable advantage to the farmers (particularly in a country where objects for the employment of the peasantry are so much multiplied as in this island), by giving them a greater controul over the labourers, and in a greater measure commanding their services, when the labours of the country require to be most promptly executed. The cottager usually finds glass for the repair of his windows; and there are always from 15 to 20 square perches, and not unusually 40, attached as garden ground to each tenement. The wages of the harvest month, which is commonly three guineas, secures and pays the farmer the rent of these cottages; but here it may not be amiss to observe, that when the harvest continues longer than that time, the harvestmen are still fed and kept by the farmer, who pays them 1*s*. 6*d*. per day for such extra time, and until the harvest is in.

These cottages, as well as the farm-houses, are built with brick, and the different sorts of building stones, with flints, as before-mentioned: the latter materials being often rough-cast, and the brick-work white-washed, not only contributes to tighten them against the force of the south-westerly storms, but also to give an air of much neatness, and greatly to diversify and increase the natural beauties of the country. Tile, but more frequently thatch, is the covering of these cottages. They are all neatly plastered and white-washed in the inside. Their construction in respect to the disposition of their apartments, are various: their floors are either of brick, old ship-plank, or lime-ashes mixed with pounded chalk; and are generally so numerous, as seldom to become double-tenanted.

Few of the labourers have the run of less than one or two pigs, and some that of a cow, among the young stock and stores of their employers—an indulgence which also, in some cases, extends to the head-man and thrashers, and those more particularly in situations of trust and confidence with their masters. Upon the whole, the peasantry of the Isle of Wight seem to enjoy as much real comfort, as can well be expected to comport with their situation in life, and the duties necessarily connected with it.

CHAP. IV.

OCCUPATION.

SECT. I.—SIZE OF FARMS, FARMERS, RENT, AND TITHES.

Size of Farms—Various; rather small. The light sand and gravelly loams throughout the county are as particularly required, as they are generally adapted, to a greater variety in their course of cropping, than what can possibly take place upon the heavier lands, which, not being capable of affording such changes in their ordinary rotation, seem more properly to fall within the management of a less substantial and enlightened tenantry. A field, however, to some extent, is always open to vary the practice of the heavy-land husbandry, by the culture of green, succulent, and brown straw crops; still, from the difficulty which frequently occurs, of getting the former from off the ground without injury to the stock and land; and turnips in particular, being of a less nutritious and feeding quality upon moist strong loams, than those grown upon land of a light and drier nature, their culture must necessarily be confined to much narrower limits, than to what this husbandry may and ought to be extended, upon milder and more open soils. Although there is unquestionably a prevailing character of calx, silex, and argill, in the different districts into which the Surveyor has found it necessary to divide the county, still these districts all contain proportions of light and heavy land, but which could not be more minutely described in a Survey of this nature, without greatly multiplying the number of districts, and that perhaps in a manner that would contribute more to confuse than to elucidate the subject in question.

DISTRICT I.

Notwithstanding that, within a few late years, a number of small farms have been united into one occupation; their average size at this time, through the whole of this district, does not exceed 80*l*. per annum.

Farmers.—The occupiers may be divided into two classes: those of the higher order are represented as a sober industrious sort of men, seldom leaving home, but when their business calls them to fairs or markets. Attentive, and sparing no labour or expense in the improvement of their occupations, particularly in the article of chalk; in the purchase of Berkshire peat-ashes, and woollen rags, procured from London and Portsmouth. Their dwellings usually afford most of the comforts and conveniences of life, and in this manner they are supposed to be getting forward in the world.

The holdings of many of the smaller farmers not affording constant employment for themselves and teams, they are found much engaged at wood cart, in conveying timber to the Basingstoke Canal, and in carting materials for the repair of the public roads: with these exertions, and by wintering a few sheep belonging to their southern neighbours, they contrive to rub on tolerably well; and if lucky with their little stock and horses, by frugality and good management, do rather more at the end of the year than make ends meet.

Rent.—The highest average that can possibly be stated of land in this District, cultivated solely for the purposes of farming, is 16*s*. for arable and 30*s*. for the grass, including meadow and prime pasture land. Osier-beds in good plant will lett for about 3*l*. per acre, and some accommodation land near Odiham, and Kingsclose, and in the neighbourhood of Hartley-row, is stated to be rented as high as 3*l*. 10*s*. and 4*l*. per acre.

Tithes.—The rectorial tithe is too frequently taken in kind; but when agreement takes place between the occupier and person interested in the corn tithe, the commutation is usually from 4*s*. to 5*s*. in the pound on the rack-rent value of the occupation. The vicarial tithe is mostly compounded to the satisfaction of both parties.

Grass, Arable, and Wood Land.—The proportion of productive country within this District, and excluding the heaths and commons (which are very considerable), are estimated as follows: of arable there is about one half; grass, three-twentieths; and of timber and coppice woodlands, the remainder, or seven-twentieths.

Poor Rates and other Parochial Taxes.—The satisfaction which seemed to accompany the manner in which this subject was treated in the Devonshire Report, induces the Surveyor on the present occasion, to adopt of life, and that in an ample and very liberal degree. They are, withal, many of them possessors of small estates, which their thrifty management keeps upon the increase; and hence they happily combine the opulence and respectability of both tenant and yeoman.

Rent.—The average rent of the strong tillage land through this District, may be stated at 17*s.*; the higher and thinner-stapled land at 12*s.*; and the old downs or sheep-walks, from 5*s.* to 7*s.* 6*d.* and 10*s.* per acre. Many of the old pared and burnt downs are of so little value, as to bear no price whatever in this estimate. Upland meadow and good pasture land, 32*s.*; water-meadow, from 40*s.* to 60*s.* per acre; osier-beds, about 50*s.*; and accommodation land in the neighbourhood of Winchester, and other large towns, from 3*l.* to 5*l.* per acre.

Tithes.—The great tithe through this district is but too frequently taken in kind; but when commuted, the great and small tithes together generally pay about 5*s.* in the pound upon the full rent of the farm present value. The vicarial tithe was observed in too many cases to be drawn; and when it is commuted upon the woodlands, it is generally paid by the owner or occupier, 2*s.* in the pound on the amount of sales in the wood.

Arable, Grass, and Wood Land.—The proportion of productive country (excepting the old pared and burnt downs, and which are only applicable for rabbit-warrens) may be thus estimated: six-twentieths down sheep-walk; five-twentieths light, thin-stapled, sainfoin land; four-twentieths red, flinty-grey, chisselly, and shravy loam; two-twentieths pasture and meadow ground on the permanent greenside; and three-twentieths coppice-wood, oak, and beech woodlands.

DISTRICT III.

Size of Farms.—In this District they vary very much, from 20*l*. to 300*l* per annum.

Farmers.—The different gradations in society which are thought to rise above the mere peasant level in this District, are, first, the forester; who, from time to time, has encroached a few perches from the forest, and which at length amounting to two or three acres, constitutes what he conceives a sort of independence to himself and family. Upon this he pretends to grow as much grass and hay as will suffice to bait his working horse, or horses, night and morning; a few potatoes; and some bread-corn for his family. His principal exertions are directed to the cutting, rearing, and carting of peat-fuel, and of procuring or removing any other combustible matter to the neighbouring towns and villages. In winter, he jobs at wood-cart and in carrying stones or gravel for the highways; and thus, with raising a forest colt or two, provincially called *heath-croppers*, and one or two of an equally inferior species of neat cattle, is found to get on easily, and in some respects independently, through life.

The small farmer is found to work full as hard as the day-labourer, and from whom he derives his origin; and to live but little better. The country being generally adapted for the culture of turnips, those cultivated by the smaller occupier are taken by their more wealthy neighbours, commonly at their own price;

and in favourable turnip seasons, the larger farmers and flock-masters are not unfrequently pressed by the smaller occupiers, for their sheep to consume the turnips gratis, and in due time for sowing their spring crops.

The farmers most respectable for property, though still inferior to the down farmers in point of capital, are nevertheless men of substance, industry, and intelligence; and may consequently be considered as a people getting forward in the world.

Rent.—The dry meadows and best feeding ground, are usually rated at about 35*s.* per acre; the land subject to a course of tillge, about 15*s.*; and the water-meadows, including osier-beds, about 50*s.* per acre. The accommodation land in this District does not seem to demand any particular notice.

Tithes.—The great and small tithes are commonly commuted in this District for about 4*s.* 6*d.* in the pound, on the rack-rent value of the occupation.

Arable, Grass, and Wood Land.—The water-meadow and osier-grounds through this District, are estimated at a one-twentieth part of all the enclosed land; the upland meadow, and feeding land, two-twentieths; the land subject to a convertible system of husbandry, whether upon a gravel, sand, malm, or loamy bottom, is supposed to comprehend about fourteen-twentieths of the enclosed private land; and the oak woodland, coppice, and fir plantations, about three-twentieths more.

DISTRICT IV.

In a District which lies so very wide and scattering, and consequently contains so great a variety of soil and substrata, it is reasonable to suppose that much diversity will occur, as well in the extent of the farming occupations, as in the character of the occupiers. The

Size of the Farms—Are therefore rendered so very unequal, as to reach from 30*l.* to 400*l.* per annum. The recent consolidation of farms in the different parts of this District were much complained of, as a circumstance unfavourable to the regular supply of poultry and other small articles of country produce, and which are generally yielded from the lesser occupations of the country. These complaints, however, are by no means of such a nature as to merit serious consideration; and although, from such a practice, the most extensive occupations are in the hands of

Farmers—Of considerable intelligence, they are not generally, in point of capital, found to hold as high a station as the principal occupiers in the chalk districts. Many of them, however, in addition to the land they rent, are occupiers of their own estates; and thus, as before noticed, contribute to give additional weight and consideration to the tenantry of the country. They [illegible] in general active and industrious, and spare neither pains nor expense in improving the sheep stock and husbandry of the country. The improvement of the native horse and neat cattle in the country must for ever remain stationary, so long as the wastes and forests remain open, and that such an indiscriminate mixture of worthless males of both kinds have free and unlimited access to them.

The condition of the lesser farmers may be very well referred to what has been just stated in the preceding District; to which we also may add, that many of these, as well as the forester, or those who drive a miserable horse and cart, spend much of the time they have to spare from the working of their immediate occupation, in the carriage of wood-fuel, fern, furze, &c. from the forests to the large towns and villages in the surrounding country: some of them getting a little forward in the world; but others, from the losses they are liable to meet with in their forest stock, are alternately in poverty, and again recruiting to the condition which again subjects them to fresh losses: very few, indeed, are seen to rise gradually above that condition of life in which they first started.

Rent.—The mild, gravelly, and sandy loams, are rated from 20*s*. to 28*s*. per acre; some instances occur, particularly in the parish of Titchfield, of arable land being valued as high as 35*s*. per acre. The dry, stony, or light sandy loams, from 16*s*. to 21*s*. per acre; the strong sour loams, or clay, from 14*s*. to 18*s*. per acre; water-meadow, from 40*s*. to 4*l*.; osier-beds, 50*s*.; upland meadow and feeding ground, from 35*s*. to 50*s*.; and accommodation land, from 4*l*. to 6*l*. per acre.

Tithes.—From a number of instances collected on the Survey of this District, the commutation paid for the great and small tithes is found to amount to about 27½ per cent. upon the present rack-rent, or value of the farms; but it is deeply to be regretted, that so many instances occurred, particularly on the western side of the county, of the tenth meal of milk being demanded, and paid with every other species of tithe, great and small, in kind.

Arable, Grass, and Wood Land.—An almost insurmountable difficulty appears to occur, on a Survey of this nature, in stating in all cases the relative proportions of a country thus occupied; but where public and private property, individual, church, and crown lands, are so blended and mixed together, as in the District now before us, it is in a manner impossible, on so cursory a view, to form any thing of an estimate upon which the slightest reliance should be placed. Difficulties, however, have seldom repressed the efforts of the Surveyor, in attempting to accomplish whatever he conceived to be right; and therefore, to the best of his judgment, and excluding the forests, chases, heaths, and common lands from the estimate, he will venture to state the following proportions, as applicable to the enclosed and productive property only. Arable or tillage lands, twelve-twentieths; upland-meadows, embanked marshes, and other feeding grounds, three-twentieths; water-meadow and osier-beds, one-twentieth; coppice and timber woodlands, four-twentieths.

DISTRICT V.

Size of Farms.—There are many farms of considerable extent and value in this District, and which may be generally stated as running from 250*l.* to 300*l.* per annum.

The Farmers, Graziers, Butchers, and Gardeners—Occupying this District, seem justly to appreciate the value of their respective situations. Great activity and diligence seem to prevail among them, in correcting the natural defects of the soil in the higher country, as well as along the sea-coast and in the adjacent islands, and with feeding and annually renovating the whole with dung, and other rubbish, procured from Portsmouth and Gosport. The reputed acre here, whether in the enclosures or common fields, is extremely various; in some places not exceeding 107 or 120 statute perches; in others, particularly in Haling Island, the customary acre is found to exceed the statute measure by about one-eighth, or 20 perches; the whole, however, in the following estimate, is intended to be reduced to the legal standard.

Rent.—That of the arable in the open common-fields fluctuates from 18*s*. to 24*s*. per acre; the enclosed land of a similar quality, but in higher condition, and rendered much more productive by skilful, appropriate, and independent management, from 25*s*. to 32*s*. per acre; pastures and rich feeding grounds, including the embanked marshes not employed as saltings, from 25*s*. to 35*s*. per acre: garden ground in Portsea Island and near Gosport (the latter not noticed in the preceding District), varies, according to its situation and quality, from 40*s*. to 80*s*. per acre; accommodation land in the neighbourhood of Portsmouth and Gosport, from 7*l*. to 10*l*. per acre.

Tithes—Great and small, are generally commuted for 5*s*. in the pound on the rack-rent value.

Arable, Grass, and Woodland.—A large proportion of this small District is employed in one continued round in green and white straw crops, and in raising garden-stuff for the supply of Portsmouth, and the establishments connected therewith: this being the case, the particular appropriation of the country was not looked at, as heretofore, with a view of forming even a loose estimate of those proportions as were employed in the culture of grass and corn, or left in their more native state, for the growth of coppice wood and timber.

ISLE OF WIGHT.

DISTRICT VI.

Size of Farms.—In this divided District, the occupations in their consolidated state may be said to vary from 100*l.* to 300*l.* per annum. The

Farmers—May generally be considered as a sober, careful, industrious, and well-informed set of men, often occupying their own small freeholds in addition to what they hire, and upon which, as well as upon their rented land (where protection and encouragement are afforded, under a reasonable term of years), no labour or expense is spared in improving their occupations, by chalk, marl, and mixing the different earths together.

Rent.—The strong loamy clay, which gives a character to this District through its several divisions, essentially reduces the current value of its arable proportion to about 14*s.* per acre. The meadow, pasture, and marsh lands, lying generally on the same close, wet, and cold subsoil, are not rated higher than from 15*s.* to 25*s.* per acre.

Tithe.—This is by far too frequently taken in kind;

but when commutation takes place, the great and small tithes are generally valued at about 4*s*. 6*d*. in the pound upon the rack-rents.

Arable, Grass, and Woodland.—A large quantity of woodland is found to occupy the north-west; but the north-east quarter may be considered as more heavily timbered by a bold and thriving growth of oak. The woodland proportion of this District being in a state of very rapid decrease, was not examined with any view to established quantity being relatively ascertained.

DISTRICT VII.

Size of Farms.—The occupations in this District are stated to run from 50*l*. to 500*l*. per annum. Many of the larger

Farmers—Occupy, in addition to the land they hire, their own small estates, and from the pains and expense they bestow in improving their stock and husbandry (which, though evidently a few years behind their neighbours on the mainland), are entitled to much praise for the readiness with which they strive to adopt and emulate superior management.

Rent.—The prevailing character of soil in this District, generally allowing for its being constantly employed in the growth of green legumens, or white straw crops, gives to it a most decided superiority over any other district in the island, and affords the rent of its arable to be taken at an average of 25*s*. per acre; not but that there are some farms in this District with no extraordinary portion of feeding land, which rent tithe-free from at 40s. per acre. Embanked marshes, dry and wet meadows, and rich feeding grounds, run from 30s. to 45s. per acre.

Tithes—Either belonging to the church, or in the hands of lay impropriators, are but too frequently drawn or taken in kind. When a commutation takes place for rectorial and vicarial tithes, it is seldom less than 6*s*. 6*d*. and 7*s*. in the pound, upon the full improved rent or present value.

Arable, Grass, and Woodland.—This District is generally well wooded, and the proportion of land under a convertible system of up and down husbandry, to that lying permanently on its green side, may be stated at about five of ploughed land to one under grass.

DISTRICT VIII.

Size of Farms.—The farms in this, as in every other chalk and consequently sheep District, run very large, extending from 200*l*. to 800*l*. per annum. The

Farmers—Are in nowise inferior to the larger occupiers in District No. II.; but to these occupations there must in some cases be added a tract of good feeding marsh and meadow land.

Rent.—The rent, or value of the tillage land, may be rated from 12*s*. to 18*s*. per acre; the sheep-downs, from 5*s*. to 7*s*. 6*d*.; and the marsh and rich feeding grounds from one guinea to 35*s*. and 40*s*. per acre; the proportion of this latter is, however, but small, and was no where noticed but in the valley of the Medina,

dina, above Newport, and towards the east end of the island. The accommodation land in the neighbourhood of Cowes and Newport, is usually rented from 4*l.* to 6*l.* per acre.

CHAP. V.

IMPLEMENTS.

Ploughs.—A variety of ploughs are found in the different parts of the county, most of which, with little exception, are to be met with in the adjacent counties, and where they are in like manner applied for the particular work they have to perform. Gentlemen accustomed to a light land country, too frequently pronounce hastily on the power required, as well as the nature of the instrument most proper for working with effect in stronger lands, and with which they are in a great measure unacquainted. The surface of a clay loam is often observed after it has been acted upon by the winter's frost, to be loose, tender, and friable; a decision immediately takes place on the obstinacy and folly of the farmer, for applying a power unnecessarily expensive in the tilling of his land—would these gentlemen condescend to examine the subsoil of such field, or take hold of what they term an unwieldy apparatus, that may be working upon it; they would soon discover that it is not the loose surface of one or two inches in depth that the plough has to contend with, but that the machine must pass through a subsoil of tough, strong, and perhaps stony loam, and that little short of the power employed would be able to effect that purpose.

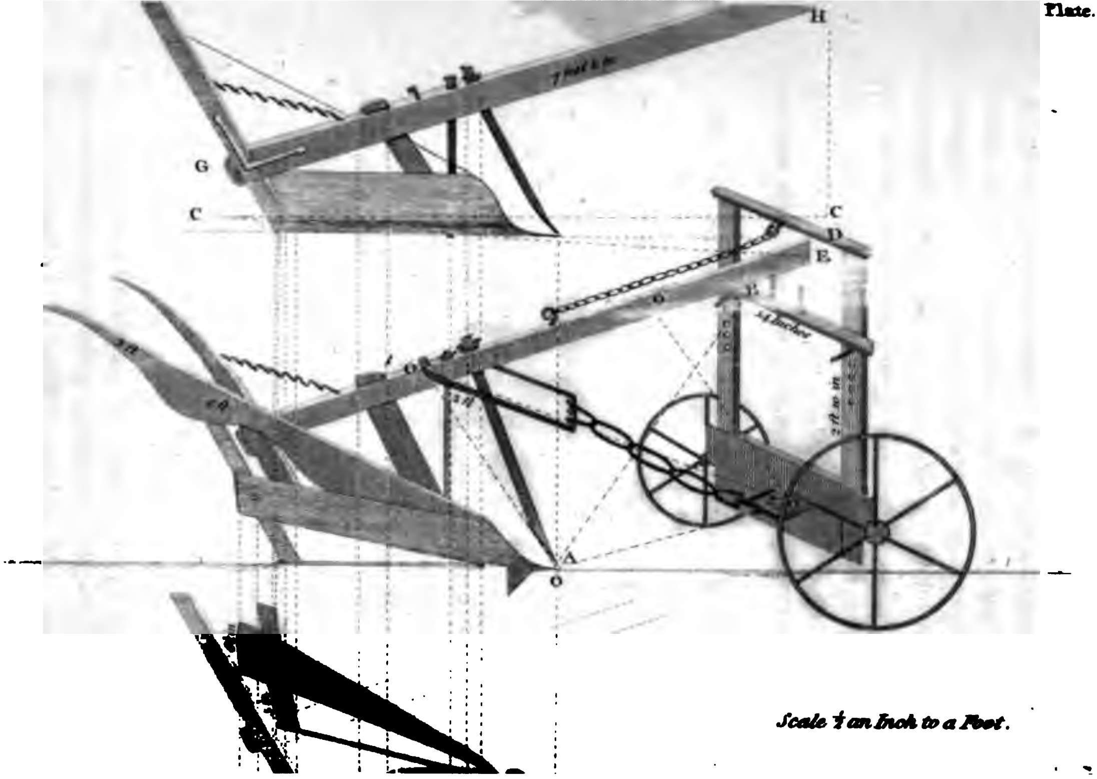
That some improvement may be made upon these ancient machines, daily experience very clearly shews, at the same time it as fully demonstrates, that there is an absolute necessity of not altogether departing from a principle, the utility of which has been established upon the practice of ages. In all tough and stubborn loams, which on their breaking earth, are meant to be ploughed clean and to a full pitch, strong and sufficient implements must be resorted to; but in making the subsequent ploughings upon such lands, lighter machines, and consequently requiring a less force, are generally used by all the most thinking, and best informed cultivators in this county.

The large, heavy, Two-wheel Plough—is a native of this county, Wilts, Sussex, Kent, and Surrey. It seems indispensably necessary for breaking up the tough, red, flinty, strong, chisselly, and shravy loam, found in all chalk countries. The number of large ragged flint stones, and the almost continued bed of smaller ones mixed with the soil, and lying upon a tough untractable understratum, demands the principle of such a machine to work with effect upon such lands. This plough rests upon a carriage, and is so constructed as to be taken up or let down at pleasure: it is pitched at an easy angle or dip into the ground, and whether ploughing deep or shallow, it may always be set so as to preserve an uniform depth, without drawing into the subsoil, or being liable to be thrown out of its work by the number of impediments with which these soils abound.

A machine of this strength and steadiness seems indispensable for the first, or breaking earth, in all the tough, strong, stony loams, here mentioned. It is sometimes contended, that foot or swing-ploughs will, under

COMMON HAMPSHIRE PLOUGH.

Plate. III. page. 93.



Scale ½ an Inch to a Foot.

under the same circumstances, perform equally well with the large wheel-ploughs; such advocates, however, are not ploughmen. The patronage of the curious and wealthy will sometimes procure a currency for new inventions, which however popular at first, upon the long run are found inadequate to the performance of the work occasionally required of them: a gradual disuse follows; and recourse is again had to a principle which has grown upon the experience of ages. (*Vide Plate* III.)

C C, axis of the beam.

C D, subtense, according to Tull, one inch and a half.

C E, ordinary subtense of these ploughs, varying from four to six inches.

Whole length of beam from G to H, seven feet six inches.

Ditto of sole, from 3 to 12.43 inches.

	Ft.	*In.*		*Ft.*	*In.*
From 1 to 2, ...	0	3	From 1 to 7, ...	1	6
—— 1 — 3, ...	0	4	—— 1 — 8, ...	1	10
—— 3 — 5, ...	0	10	—— 1 — 9, ...	2	8
—— 1 — 4, ...	0	5	—— 1 — 10, ...	3	1
—— 1 — 5, ...	0	7	—— 1 — 11, ...	3	4
—— 1 — 6, ...	0	9	—— 1 — 12, ...	3	11

This plough is drawn to the exact dimensions of the old Hampshire plough, the wheels excepted, the proper height of which is found by the rhomboid o o o o, through the centre of which o 1, o 2, the dole chain ought to pass, or as near to it as possible, and so as to have the draught in the centre of the two resisting points A B. The height or semidiameter of the land wheel is ten inches; that of the larger or furrow wheel fourteen inches.

That this plough is capable of improvement in some of its parts is beyond a question; for in the place of the long, straight, unwieldy breast or mould-board, a well turned cast-iron breast, calculated to enter the ground and receive the slice at an easy angle, in short, the cast-iron plate of the Suffolk plough, would be one of the most important improvements it is capable of receiving. An improvement has been attempted in the construction of

Plenty's Patent Wheel-Plough—Which is stated to have been much used in the strong flinty loams, as well as upon other strong lands in the county. The great excellence of this instrument seems much to consist in the quantity of cast-iron used in constructing and working it: no diminution of power is obtained by the use of it, to that required for the old Hampshire two-wheel plough; and from the abrupt manner in which it is made to enter the ground, and to take the slice, is certainly much less steady in dry, tough, stony land, and is, therefore, found to be gradually giving way to the old wheel-plough, for the first or breaking earth, on such occasions. Its operation in reducing the blacksmiths' bills cannot, however, fail of continuing it as an instrument of much value among the farmers.

The Improved Turn-wrest Plough—Is the next two-wheel plough that demands our notice. This machine is necessarily used with a dagger share, and although its general utility is not to be questioned for ploughing side hill ground, yet care is not always taken to carry the furrows sufficiently small, particularly in the stirring earths and second or third ploughing.

The compactness of the soil in the first ploughing, will usually occasion the whole slice to adhere together, and to rise clean from the bottom of the furrow, and consequently to break off and sever such root-weeds as may not have been cut with the dagger share; but which may have penetrated the subsoil, and would have escaped destruction but for the compactness of the top-mould; but when this becomes loose and broken, after the first ploughing and subsequent operations of tillage, this machine becomes unnecessarily large and unfit for the following ploughings—a truth easily demonstrated by the desire of the ploughman to carry the usual slice or furrow. By this greediness the soil becomes only partially loosened and turned over, there being always on the furrow side of the plough a balk or comb left of uncut and unmoved ground. Would it not, therefore, be adviseable to adapt the turn-wrest principle to a plough of much lighter construction, to be worked with two, or at most with three horses, and the ploughman, upon all occasions when ploughing fallows, to be strictly forbidden from carrying less than five furrows to the yard?

The Mole Draining Plough.—This plough has been used in the woodlands, and upon other strong clay loams in the county; but as it operates merely by compression of the subsoil, in forcing itself a passage through the ground, when that resistance is withdrawn, as there has been no actual diminution of soil by displacing, or removal of earth to form the groove, the natural disposition of matter to occupy certain space, returns, and the channels thus formed very soon re-close, and are seldom found to continue working with effect for any length of time.

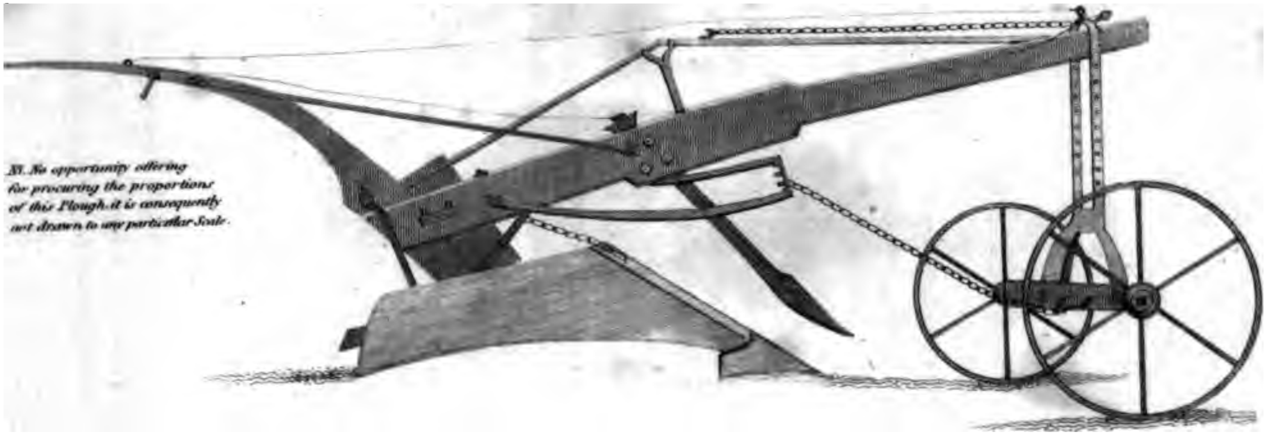
A light Two-wheel Plough—Of the Norfolk character, and constructed by Mr. Wood, of Aldworth, is very usefully employed on most of the light sandy loams throughout the county: it is seldom used with more than two horses, even in breaking up the clover-lays, and more frequently without than with a driver. The fin or wing of the share cuts a clean smooth furrow, and its well-turned plate receives the slice, and whelms it completely under.

The Two-wheel Double-furrow Warwickshire Plough—Is much used upon the gravel and sandy loams, and where it makes very good work either in whole or in broken ground. The power usually required is four horses for the lay, and three for the fallows. This plough upon the light sandy soils is also much used in seed-time and in preparation for turnips, on many of which occasions no driver is allowed, unless it is one boy to two or three ploughs, for setting out the work. The day's work is generally performed in one journey, which continues from seven in the morning until three in the afternoon, and in which time the single ploughs, under most of the circumstances above noticed, will plough from three to four roods of ground, and the double plough about two acres of fallow ground each journey.

Bourn's improved Wheel-Plough—Drawn by two horses a-breast, and without a driver, is sometimes used on the light friable loams in many parts of the county, and

Plate IV. page 97.

Sketch of the Plough used in Eastern Parts of the County,
Commonly with a Pair of Horses only & without a Driver.



N.B. No opportunity offering for procuring the proportions of this Plough, it is consequently not drawn to any particular Scale.

Published, Jan.y 1.st 1810, by R.d Phillips, New Bridge Street.

Neele sc. 352 Strand

Hants

LIGHT & HEAVY ONE WHEEL PLOUGH.

Plate V. page 97.

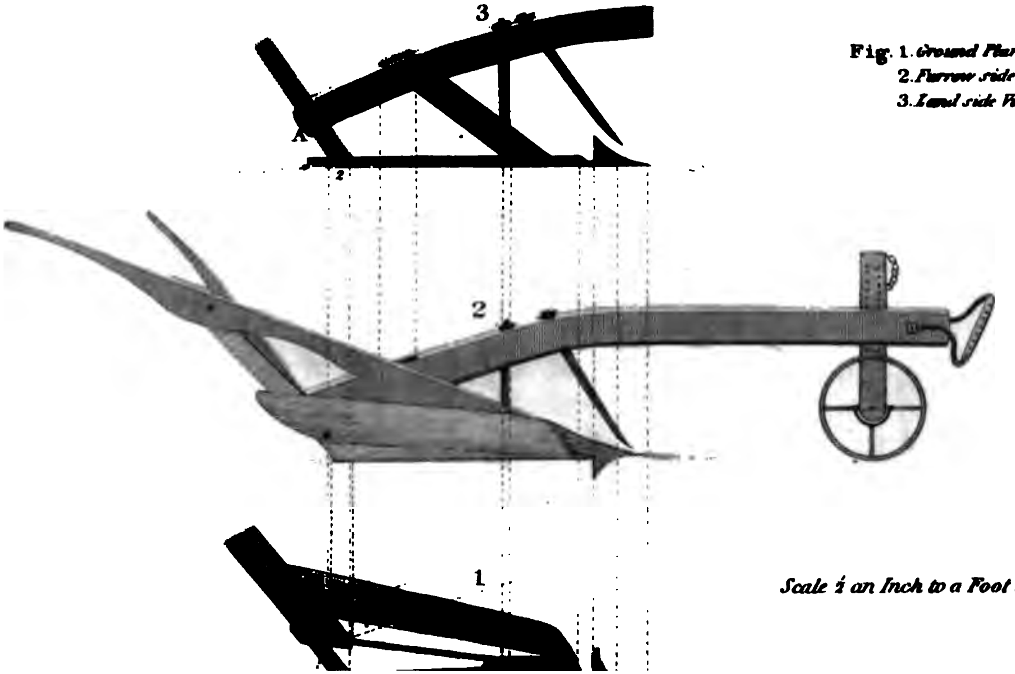


Fig. 1. *Ground Plan*
2. *Furrow side View*
3. *Land side View*

Scale ½ an Inch to a Foot.

and which is found to perform its work extremely well. (Vide *Plate* IV.)

The light and heavy One-wheel Plough—Are also found in very general use in the sand, gravelly, and some stronger loams. The beam of these ploughs lies nearly parallel with the sole, and are of shorter or longer lengths, according to the uses for which they are intended. A cast-iron wheel traverses on the left hand, or land side of the beam, and generally precedes the coulter in the width of the slice or furrow that is to be taken. From the axis of this wheel a perpendicular bar rises, perforated with holes, for the purpose of taking up or letting the plough down to a deeper furrow; and at the end of the beam there is a horizontal graduated iron, to which the team-band is affixed, and which regulates the direction of the plough from the line of draught, either to the land or to the furrow. The breast or mould-boards of these ploughs are longer or shorter, and seem in some measure to correspond in a certain proportion to the length of their beams. The superior curve generally given to the shorter mould-board, not only enables it much sooner to discharge the slice or furrow, but to invert it more completely than was often observed to be the case when discharged from the longer and straighter mould-board: both ploughs may, however, be said to perform their work very well. A little attention to the ordinary operation of the larger plough, would most probably lead to an improvement in its mould-board, by which means the furrow-slice would not hang so long upon it, friction would consequently be saved, and the ploughed work whelmed more completely over. (Vide *Plate* V.)

	Ft.	In.	
From 1 to 2,	0	3	
——— 3,	0	7	
——— 4,	1	11	
——— 5,	3	0	
——— 6,	3	3	
——— 7,	3	7	
——— 8,	4	0	
Length of beam,	7	6	
Ditto mould-board, upper side,	3	4	mean, 3 ft. 1 in.
Lower ditto,	2	10	
From 1 to B,	0	9	
From 2 to A,	0	8	

There is a lighter and smaller plough than this, on the same principle, which generally performs very well, and of much easier draught. The length of its beam is six feet seven inches; mean length of its mould-board two feet eight inches.

Another One-wheel Plough—Better calculated for hard and stony land, is sometimes made use of among the flints and strong gravelly loams, and found to answer extremely well, particularly after the land has been once ploughed or broken. (Vide *Plate* VI.)

	Ft.	In.
From 1 to 2,	0	3
——— 3,	1	0
——— 4,	1	9
——— 5,	2	0
——— 6,	2	6
——— 7,	3	0
From A to B,	0	9½

From

		ft.	in.
From 1 to 2		[illegible]	[illegible]
———	3	[illegible]	[illegible]
———	4	[illegible]	[illegible]
———	5	[illegible]	[illegible]
———	6	[illegible]	[illegible]
———	7	[illegible]	[illegible]
———	8	[illegible]	[illegible]
Length of beam		[illegible]	[illegible]
Line from [illegible] to [illegible]		[illegible]	[illegible]
Lower ditto		[illegible]	11
From [illegible] to [illegible]		1	[illegible]
From [illegible] to [illegible]		1	[illegible]

[illegible], 3 ft. 1 in.

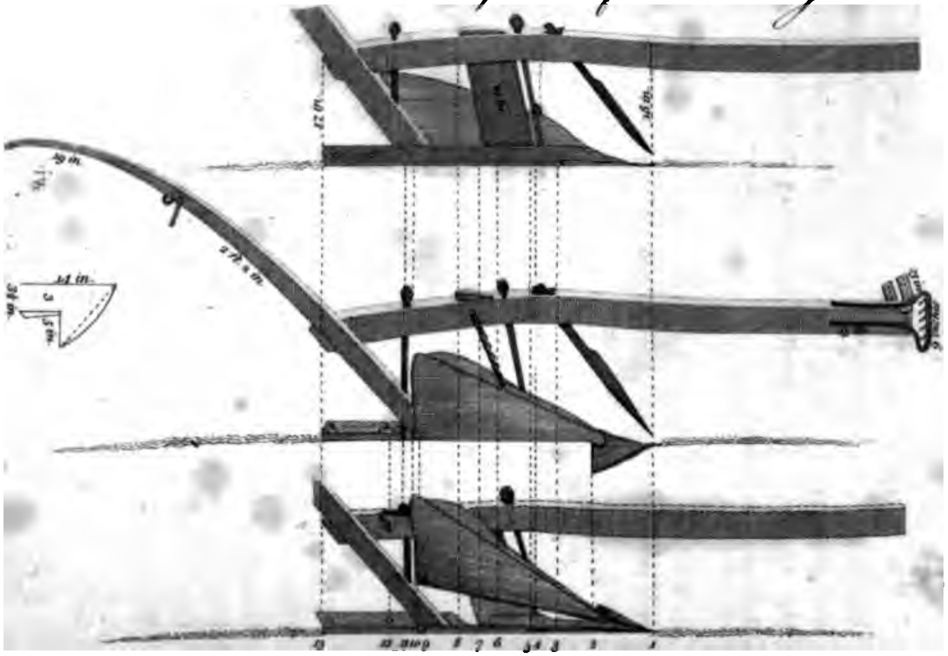
There is a larger and smaller plough than this, on the same principle, which generally performs very well, and of much easier draught. The length of its beam is six feet seven inches; entire length of its mould-board two feet eight inches.

Another [illegible] *Plough*.—Better calculated for light and stony land, is sometimes made use of among the fields and stony gravelly loams, and found to answer extremely well, particularly after the land has been once ploughed or broken. (*Vide Plate* VI.)

		ft.	in.
From 1 to 2		1	5
———	3	[illegible]	0
———	4	[illegible]	9
———	5	[illegible]	0
———	6	[illegible]	6
———	7	[illegible]	0
From A to B		0	9½

From

Suffolk Plough, used in the Isle of Wight & in the Southern parts of the County.



Han

	Ft.	In.
From A to G,	0	8
B to C,	0	11½
E E, cheek,	5	0
F F, beam,	5	3
Semidiameter of wheel,	0	7

The Burriton Foot-Plough—Is used with a pair of horses only, in fallowing the sand and gravelly loams and chalk rubbly land towards the eastern borders of the county. This is most frequently worked without a driver, as is also

The Light Suffolk Swing-Plough with one Handle.—The performance of this plough upon appropriate soils, is too well known to require any particular description; it is therefore only necessary to say, that its powers are well understood, and resorted to by some of the most intelligent occupiers in the southern parts of the county, but particularly in the Isle of Wight, where this, and the old Hampshire plough, are those most commonly in use. (Vide *Plate* VII.)

	Ft.	In.
Whole length of beam,	6	10
Ditto of sole,	3	10
Length of mould-board,	2	10
Depth of ditto behind,	0	11
Ditto of ditto before and under the coulter,	0	6
Width of neb projecting over the socket of the share,	0	8
From C to C, distance between heel and rest, and consequently the opening width of the furrow,	0	10

	Ft.	In.
From 1 to 2,	0	7½
——— 3,	1	2
——— 4,	1	4
——— 5,	1	6
——— 6,	1	10
——— 7,	2	1
——— 8,	2	5
——— 9,	2	10
——— 10,	2	11
——— 11,	3	0
——— 12,	3	2
——— 13,	4	0

Double Mould-board Ploughs—Are in very general use for the purpose of striking out the furrows after sowing wheat, moulding up potatoes, &c.; and as these mould-boards can be extended at pleasure, the furrows are shut up as close, or left as wide and open, as the farmer chooses.

Harrows—Are also various. Light ones attached one to a horse, and working two, three, or four a-breast at the same time, are in very common use upon the fallows in every part of the county. Those generally used for covering seed are still lighter. These are, in like manner, connected together with long side staples, in which links are made to traverse. One of these harrows usually works the top of the ridge, the others on each side of it, and are commonly drawn by two horses walking in the furrows. Two larger harrows, drawn also by two horses, sometimes connected with a balk or rider, but more generally united as above, are used for the same purpose on stronger lands and upon smaller ridges.

Drags.—Large and heavy harrows or drags, with two, three, or more horses to each, are worked double with two or three pair of horses. A heavy triangular single drag scarifier or tormentor, is also much used in most parts of the county.

Nine or Eleven-share Ploughs.—These are powerful machines, and held justly in estimation by all the strong and heavy land farmers throughout the county. They are frequently used in working the fallows, and in putting in seed-wheat after the dung or folding has been ploughed under; they commonly require a power of four horses, or six oxen, to draw them, with one person to drive, and another to follow the machine to clear, and keep it to a proper depth.

Cook's Improved Scarifier with a Cast-iron Beam—Is without question one of the most valuable implements for cleaning the surface, and pulverizing the subsoil, that modern invention has given to agricultural implements; the merits of this simple machine are getting so well known, that in a few years there will be most probably but few farmers of intelligence in the county without one of them.

Leicester's Cultivator—Or scarifier of a triangular form, and supported by a wheel at each angular corner, viz. one before and two behind, is certainly a valuable instrument for the purpose it is designed to answer. The advantage it possesses, of covering less or more ground by collapsing or distending its side bars, and consequently working its shares nearer or at a greater distance from each other, gives to it a very great superiority over the common nine-share plough;

its wheels, for the purpose of transporting it from one place to another, are sometimes found troublesome, but their uses once understood, there is no difficulty in applying them to their intended purpose.

Rollers—In use in the different parts of this county, vary much in their size and weight, and according to the work they are intended to perform. The materials of which they are made, are iron, stone and wood: the first is cast in the form of an open cylinder of three or more feet in diameter, about five feet in length, and commonly loaded in the centre with a square pig of iron; these require from four to six horses to work them, upon the lawns and pasture grounds they are designed to compress and improve. The stone rollers are hewed into a solid cylindric form of six feet in length and twenty inches in diameter, and seldom worked with less than four horses upon tillage, and two upon grass land; the wooden rollers varying in their length from seven to eight feet, and consequently in their weight, their diameter increasing from 12 to 24 inches. Spike or octangular formed rollers, were no where observed, but those made of wood are worked with one, two, or more horses, as occasion may require. (Vide *Plate* VIII.)

There are many lighter, and some heavier rollers, than the one here represented, which is commonly drawn by two horses at length; but they are all constructed on the same principle.

Drills.—The Rev. Mr. Cooke's improved, and Mr. Bourne's patent drill-ploughs, with their appropriate apparatus of scarifiers, hoes, rakes, and rollers, are held in just estimation by many agricultural gentlemen who

who practise the drill husbandry exclusively, as also by several intelligent broad-cast farmers, who use them occasionally for putting in a part of their spring crops. The relative merits of these implements must be here passed over, as they both possess excellencies sufficient to recommend a preference to those who may choose either, and continue it for particular use.

Patent Hampshire Waggon.—This machine is formed by uniting two carts corresponding with the the fore and hind parts of a waggon, by bolting them together. The thill of the hind cart passes under the bed, and rests on the pillow of the fore-cart. The union is simple, yet so complete, as to render this waggon as strong, if not stronger, than the common kind. Whether it may be carts or a waggon that may be required, this will certainly serve for either purpose. The outer raves of the waggon or carts are fastened to the stouters by hooks and screws, instead of rivets, and to those may be fixed, as necessity requires, a tilt or cover, also side ladders for the loading of barley, oats, or hay, or in the carriage from the field through narrow lanes, to contract or expand such loads at pleasure. (Vide *Plate* IX.)

Instructions to disunite the Waggon.—1st, Remove the pins No. 3 and 4 from shetlocks, and pass them through the bed into fore-axle; 2dly, Remove the shafts or blades back on the hounds, and receive the struts on hounds pin, as in *Fig.* 2; 3dly, Take out pins No. 1 and 2, and the waggon is disunited.

To unite the Carts.—1st, Having removed the head and tail boards, place the carts on so level ground as may be convenient, and trig the wheels of either, then run the other to it, and unite them with pins No. 1

and 2; 2dly, Remove the shafts forward on hounds, as described in *Fig*. 1, and turn the struts up under the bed; 3dly, Remove pins No. 3 and 4 from bed of fore-cart, and place them in the holes of meeting shetlocks.

No. 1, pin securing the carts together on the near side.

A, eye to receive pin No. 2 for the same purpose on the off-side.

No. 3, pin securing the shetlock of hind-cart to the pole of fore-cart.

B, hole in shetlock of fore-cart for pin No. 4, to secure it to the pole of hind-cart.

C, hole in hounds, to which the shafts or blades are removed when a cart.

D, tip iron of fore-cart.

E, tip strap through which tip iron D passes to be received on hook F when a cart.

G G, ends of shafts or blades of hind-cart.

H, tip iron for hind-cart.

I, head-board for hind-cart.

K, tail-board of fore-cart.

L, side-ladder to enlarge the waggon, and secure corn, hay, or bark, in carriage.

M M M M, hooks to fix side-ladders to.

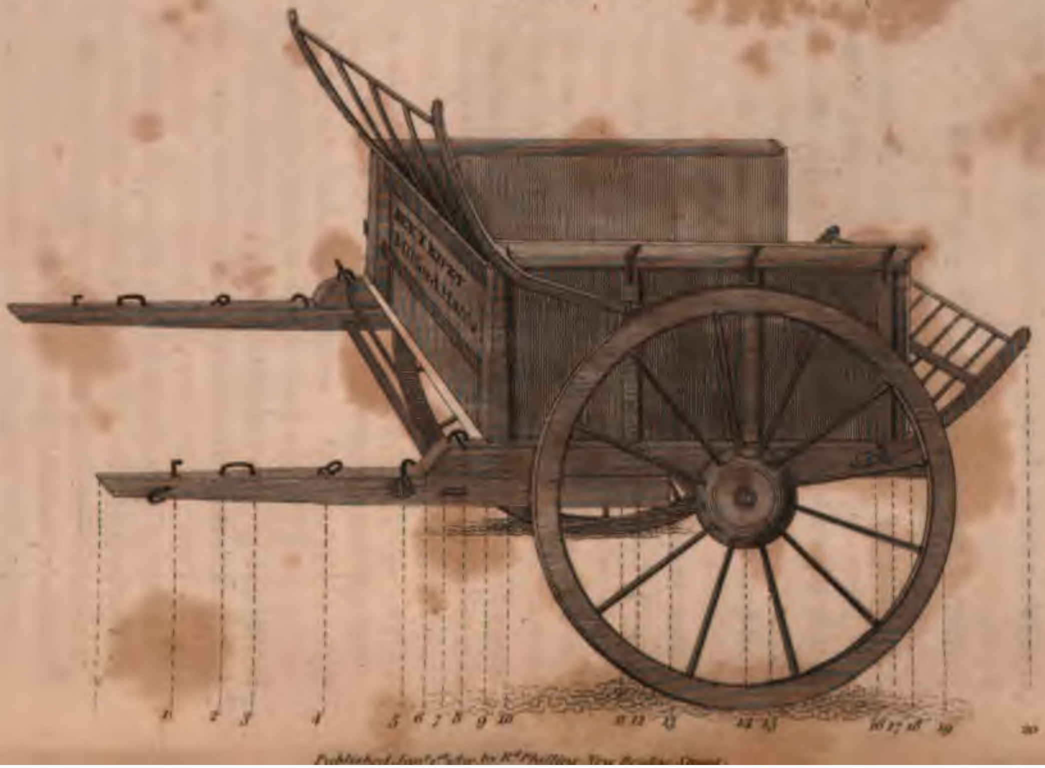
N. B. If these hooks are fixed on the under-side of outer raves, the side-ladders will be much easier fixed.

Common Waggons.—The capacity of the common waggon of this country, when level full, is supposed to be about 66 bushels; it is a compact model, generally firm and well built, with close boarded or open raves. It is however but rarely supplied with ladders, either before or behind, for the purpose of lengthening

Hunts.

CART.

Plate X. page 103.



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ing the body of the waggon in hay-time and harvest, and which in the open, down parts of the county, where the corn-fields are often at a considerable distance from the homestead, such additions would prove highly beneficial. The first cost of one of these waggons upon 2½ inch wheels complete, is about 40*l.*

Carts and Tumbrils—Holding from 20 to 40 bushels each, are in common use throughout the county. The wheels of these carriages vary from six to nine inches, and cost new, with tail and rave boards, fore and hind ladders included, from 10*l.* to 16 guineas each. (Vide *Plate* X.)

This cart is put together with mortise and tenon joints; but it would be much more durable were clasps, or nuts and screws and rivets, made their substitute. The ordinary weight for one horse in this cart is 16 cwt.: the weight of the cart is 8¼ cwt., and two horses draw in it with the greatest convenience, a burthen of one ton and a half.

				Ft.	*In.*	
	From 0 to	1	....	1	0	
Length of shafts,	———	2	....	1	8	
	———	3	....	2	2	
	———	4	....	2	8	
	———	5	....	4	0	
	———	6	....	4	3½	
	———	7	....	4	8	
	———	9	....	4	10½	
	———	10	....	5	1	Length of cart 5 ft. 7½ inches.
	———	11	....	6	5	
	———	12	....	6	7½	
	———	13	....	6	9	
To axle,	....	14	....	8	0	
		18	....	10	2	
		19	....	10	6	
		20	....	11	6	

Height,

	Ft.	In.
Height, or semidiameter of wheels, ...	2	2
Depth of cart below the raves, ...	2	0
Width of cart, ...	4	0
Projection of raves, ...	0	9
Length of side of fore-ladder, ...	4	9
Projection over the fore rave, ...	2	3

Thrashing-Mills—Have been erected of late years, and at a very heavy expense, in many parts of this county. Mr. Harris, of Sutton, near Odiham, has one constructed by a Mr. Thompson, with a double fan-rake; is worked by four, and sometimes with six horses. The horse-walk 21 feet, and the horizontal wheel seven feet in diameter, composed of eight segments, having 12 cogs in each: the trundle head 18 cogs. Attendance required, is one boy to drive the horses, one man to feed the rollers, one man to cast the thrashed corn and attend the fan, one other man to remove the straw, and two women or stout boys to carry and unbind the sheaves and supply the feeder; with these attendants, 88 bushels of wheat is thrashed and winnowed in the ordinary time, and with similar exertion on the part of the horses, supposing only four employed, as is required in performing a common day's work at plough, and which seldom exceeds eight hours. The many alterations and improvements this machine has undergone since it was first erected, makes the whole of its cost, as it now stands, to amount to little short of 300*l.* This gentleman had just finished the thrashing of a stack of wheat, produced from an 18 acre field, when the Surveyor called upon him, and from which Mr. Harris was so candid as to declare, that he had just finished the putting up of eighteen loads one sack of clean merchantable corn, besides tailing, and which was the same as usual from such a quantity. The wheat weighed, as near as could well be ascertained, 60 lb. the standard Winchester bushel, and consequently yielding a produce of a trifle less than forty bushels and a quarter of sound marketable wheat per acre.

Messrs. Digweed, of Stephenstone, have a thrashing-mill, the horse-walk of which is 30 feet, and the horizontal wheel 14 feet in diameter: this wheel is composed of eight segments, containing together 210 cogs, with a trundle-head wheel of 32 cogs. This machine, in like manner with Mr. Harris's, is occasionally worked with four and six horses. The attendants required for thrashing only, there being no winnowing apparatus, are as follow: one man to feed the roller, one to clear the machine of corn and straw, one boy to unbind the sheaves and attend the feeder, two to remove the sheaves from the mow to the feeding stage, and one to drive the horses; with this force and assistance, admitting four horses only, 12 quarters of wheat is thrashed in a journey of eight hours. The lowest computation that can be made of the first cost and putting up of the machine is 250*l.*, the annual interest of

which amounts to	£. 12	10	0
The wear and tear of the machine per annum is stated at	7	10	0
	£. 20	0	0
	20		
	400 shil.		

Attendance of two men, at 2*s*. per day, ...	£.0	4	0
Ditto of four boys, at 8*d*. per day, ...	0	2	8
Labour of four horses, at 3*s*. each per day,	0	12	0
Interest of first cost, and wear and tear of the machine, at 1*s*. per quarter, ...	0	12	0
Total expense of one day's work in thrashing 12 quarters of wheat, ...	£.1	10	8

It is here to be remarked, that the wear and tear and interest of money is charged as above, from a supposition that a farm where a machine of this sort is erected, produces annually about 400 quarters of wheat (and corresponding with the number of shillings assigned for this expense), with lent corn in proportion; but as it is only seldom that the latter crops are all thrashed in these mills, the whole of the annual wear and tear is charged to the wheat crop: under circumstances so very unfavourable, from the great price of the first cost and the putting up of this machine, and the undue proportion of work it has in this view to perform, these 96 bushels of wheat, if thrashed by hand, would, on the very lowest computation, have cost 3*s*. 6*d*. per quarter, and consequently have amounted to 42*s*. to have been thus thrashed only; hence there appears to be an actual saving by one day's work of the mill upon this quantity, of 11*s*. 6*d*., besides the almost incalculable advantage arising from having the corn thrashed at least five per cent. cleaner, and which in the case before us, and at average price of 8*s*. per bushel, would have amounted to about 40*s*. more, allowing at the same time every reasonable advantage that might have accrued to the swine and poultry from the shackage of foul or ill-thrashed straw. The interest of money employed in the first cost and putting up of those machines, and the wear and tear of them afterwards, is fixed at ten per cent. per annum, because they ought all, on a fair calculation, to clear themselves in ten years, and at all events, owe nothing for their establishment after the passing of that time.

Mr. Roberts, of Abbotstone, near Alresford, has erected one of Thompson's improved thrashing and winnowing-machines, and which is worked by water. The diameter of the water-wheel is twelve feet six inches, the buckets, or rather float-boards, four feet in length, and the breast-shot, or point upon the wheel where it takes the water, about 20 inches below the axis of the wheel. The first cost and putting up of this machine is estimated at about 300*l*. The assistance required is three men and two boys, who will thrash and winnow in this mill at the rate of 20 bushels of wheat, 26 of barley, and 30 of oats per hour. Sinking the first cost, and wear and tear of this machine, it is calculated to winnow wheat at 6*d*. per quarter.

Mr. Seward, of Weston, near Petersfield, has built a windmill, which drives two pair of stones with their bolting apparatus, a thrashing and winnowing machine, and chaff-cuttér, at the same time. The work performed per hour in this mill, when going with a brisk steady wind, is, grinding wheat and barley, six bushels each; thrashing and winnowing wheat, 12 bushels; and straw-cutting with Winlaw's three-bladed engine, as fast as any one person can conveniently feed it. The first cost of this building, with its machinery, falls little short of 800*l*., and exhibits an extraordinary example of spirit, liberality, and confidence, upon an unexpired term of 14 years. Although this machine performs the whole of its operation extrémely well, it may admit of question, seeing the great uncertainty of the power upon which it is necessarily dependent, and the interruptions it may occasion to the business of the farm at hay-time and in harvest, whether steam would not upon the whole have proved a more advantageous power; for if the consumption of coal for a four or six-horse power, is not more than the same number of bushels per spell of eight hours, a most decided preference to the latter must unquestionably be admitted.

Sir Henry Tichborne has attached a thrashing and winnowing apparatus to a water-mill, which drives two pair of stones, thrashes and winnows corn at the same time, and to an effect corresponding with what has been already stated at Abbotstone.

Mr. Lavington, of Twyford, has also a thrashing-machine which is worked by water, and to which is attached two pair of mill-stones of three feet ten inches diameter. The rollers in this thrashing-machine are about five feet eight inches long, requiring two men to feed and three attendants. The other hands are, one to attend the rake and remove the straw, one the thrashed corn and dressing machines, and another to separate the chaff from the cavings. With this assistance, this mill will thrash and winnow at the rate of 30 bushels of wheat, and other grain in proportion, per hour. The money expended in this establishment, including mill-dam, mill-race, building, and in the grinding and thrashing machinery, falls little short of 3000*l*. Mr. Lavington has annually about 120 acres of wheat, besides lent corn in proportion, the greater part of all which he thrashes in this mill, and otherwise does a great deal of business in the manufacturing of flour.

Mr. Fitzherbert, of Stubbington-lodge, Portsea

Island, is now erecting a thrashing-machine, the principal outline of which is as follows: the diameter of the horse-walk is 16 feet; vertical shaft of iron, six feet in height; horizontal wheel, eight feet in diameter, formed of 11 cast-iron segments of 12 cogs each; trundle-head wheel 20 cogs. To this machine is attached a chaff-cutter, bean and barley cracker, and mill for grinding malt. The assistance required to thrash only, is one man, and one assistant boy to feed the machine, to stop or hasten the horses; one man to pitch the sheaves upon the stage and clear the straw, and one other boy to cast them from the mow. The quantity of corn which this machine will thus thrash per hour, and with a power of three or four horses, had not been ascertained when the Surveyor was last at Stubbington-lodge, but which Mr. Fitzherbert has politely promised to communicate to the Honourable Board as soon as possible, and that it can be done with accuracy.

Mr. Wade, of Pucknell, has lately erected a thrashing-machine, convenient to the new barn he has placed upon staddles. The sheaves are conveyed from the barn, over a temporary stage, to the thrashing-mill. This barn is erected upon a more enlarged base than usual, spreading out to the south-westward, and producing a greater length of roof on that side, and with a consequent diminution in the height of the wall on the same side. This plan has been adopted with a view of securing the barn, when empty, from the violence of the south-westerly storms. By this enlargement of the base, the stowage-room of the barn is not diminished; and the additional roof is balanced in expense by the reduced height of the wall.

Admiral Cornwallis has erected a thrashing-machine, with a six-horse power: the diameter of its horse-walk is 24; that of its horizontal wheel 12 feet, with cast-iron segments of 20 cogs each: the trundle-head wheel contains 24 cogs. The attendants required in working this mill is, one boy to drive the horses, two men to feed the rollers, with two attendants to remove and unbind the sheaves, two men to attend the corn and winnowing apparatus, and one the rake, and to remove the straw. These are the hands required when the wheat is in the barn; but when it is to be removed from the adjoining stack-yard, a proportionable increase of hands for such additional labour is to be added to this statement. This machine, without urging the horses, beyond ordinary exertion, will thrash and winnow about two loads and an half of wheat, and of other grain in proportion, in a journey of eight hours: the wheat, however, undergoes a subsequent slight winnowing before it is put up for market.

Thrashing-machines of a two and three-horse power, are getting into much use in the valley of the Avon. The full cost of their erection amounts from 80*l.* to 120*l.*; and admitting the corn to be in the mow, the assistance required are, two men, two women, and a boy. Winnowing machinery is sometimes attached to these mills; but which is found frequently to give place to the Dutch fan, or common whisk or fly. The quantity of wheat estimated to be thrashed only by these mills, is from 10 to 14 bushels per hour, and of other corn in proportion. These mills being previously set for the purpose, prepare the clover-heads very well for thrashing.

Mr. Geary, of Arreton, and Mr. Roach, of Redway, in the Isle of Wight, are now erecting thrashing-mills, the full cost of which will not exceed 80*l.* each. Here appears to be a great and necessary abatement of expense, which it is hoped will continue till it falls within the reach of the lesser occupiers, and until the Exeter model becomes more general. It is in a manner impossible, at least very unlikely, that this useful and important machine will have that full establishment in the country, it is so deservedly entitled to.

Mr. Arnold, of White-court, near Brixton, made some years ago the model of a thrashing-machine, which, so far as comes within the judgment of the Surveyor, appears to obviate many of the defects and objections which are still made to many thrashing-machines of late invention. The model, upon the whole, reflects much credit on the ingenuity and mechanical talents of the inventor.

Sir Francis Baring has built a thrashing-machine for one of his tenants, who agrees to pay 6*l*. per cent. per annum on the amount of the first cost and erection, and which is to be paid as so much additional rent during the remainder of his present lease, formerly granted for 21 years, but of which there remained 16 years unexpired when the machine was finished, and ready to work; and as Sir Francis undertakes to keep the machine in good repair, barring any damage it may sustain by wilful neglect or otherwise, this example cannot but be regarded as an extremely liberal one on the part of the landlord to the tenant.

Mr. Eyles, of Bull Farm, a tenant of Sir Francis Baring, in the parish of Kingsworthy, has composed a machine for sowing broad-cast any quantity of seed, soot, ashes, &c. from one pint to two quarters per acre. The Surveyor had an opportunity of examining the work made with this machine, when the following crops appeared to be doing extremely well. Barley, put in by this machine, four bushels and a half of seed per acre; in the ordinary way, five bushels: wheat, three bushels per acre; in the ordinary way, three bushels and a half: oats, seven bushels per acre; in the ordinary way, eight bushels: pease, seven bushels per acre; in the ordinary way, five bushels. Turnips, and other small seeds, are distributed by this machine with equal accuracy, from one pint to any additional quantity of seed per acre. The circumstance which gave rise to this invention with Mr. Eyles, was the great difficulty he had always found in getting his seedsman to sow a sufficient quantity of pease. Those which the Surveyor saw were the Marlborough greys, and without question the very best, for the breadth or extent of acres, that at that time, or during the remainder of the Survey, he had an opportunity of viewing in any other part of the county. As Mr. Eyles seemed inclined to enter a specification in the Patent Office for this machine, it is perhaps from that circumstance that the Surveyor has not been favoured with the drawing, he had some reason to think, would be intended for him.

Mr. Roberts, of Abbotstone, in conjunction with Mr. Cathering, have lately obtained a patent for a machine and preparation that completely cleanses the smut from wheat. The Surveyor witnessed the effect of this discovery, and which appeared to leave the smutty grain perfectly clean and bright, and free from any appearance of disease whatever. The whole expense of the operation does not exceed 3*s*. per load, and wheat so cleansed will, without any question, make flour equally good as that produced from wheat of the very first growth and quality.

A temporary hay-roof is constructed by Mr. Patrick, of Petersfield: this consists of a ridge pole supported by two upright poles, each of which latter have a sheave let into their upper end, which receiving a rope connected with each end of the ridge pole, it is thus raised and lowered at pleasure. The number of boards required to cover the roof of a stack 30 feet long, is just 100 of three-quarter inch thick, from 10 to 12 inches broad, and 12 feet long: these are fastened to the ridge pole by holes in the end of each board, and by which they receive pegs inserted cheveaux de frize ways in the ridge pole: the boards are hung upon these pegs over the stack, forming what is called a lubber-board joint. Those boards occupying the weather or most exposed side of the stack, should be bored six inches farther from the end than those to leeward, the ends of which they are designed to cover. These boards payd with tar and ochre, and laid under cover when not wanted, may be so preserved for 30 years. The ridge and upright poles may with ease be made to last quite as long as the covering boards, all which together, form an excellent substitute for a sail-cloth or tarpaulin, and from being much more manageable in catchy weather, and whilst part of a stack is thatching, are consequently more advantageous for general use.

Cook's steamer for potatoes is much approved of by many gentlemen in the county. The Rev. Mr. Haldon, of Thruxton, has one which he has used for many years: it will steam ten bushels the first time in about two hours, and the same quantity in about an hour and three quarters afterwards.

The same gentleman uses Lander's patent pump, which appears to be equally a forcing as a lifting machine:

chine: with the ordinary exertions of a single man it will raise 50 gallons in two minutes and a half. The following description, with the drawings to which it refers, was very obligingly communicated to the Surveyor by Mr. Lander himself. (Vide *Plate* XI.)

Fig. 1, represents a double rack and semicircle, kept in its proper place by two friction wheels, and moved by a winch, as at *Fig.* 4, which makes the alternate motion in the pump-rod, and by which, at six inches distance from the centre, a stroke of nearly 18 inches is effected on each side, or three feet in one revolution; whereas by a crank, as at *Fig.* 2, only two feet would be obtained: it is allowed the crank goes easier at top and bottom, but this is a great imperfection in many cases, owing to its irregularity in making a stroke, it being so very slow in the upper and under part, in respect to the perpendicular stroke, when used for pumps (notwithstanding it moves in a circular way uniformly), that a great part of the water is lost, as will appear by moving a common pump handle very slow, although the whole extent of stroke is passed through, and it is as much defective for many other purposes.

Fig. 3, is a common lever handle, or brake, of the same distance from the centre, which will only produce six inches, as appears by the dotted lines.

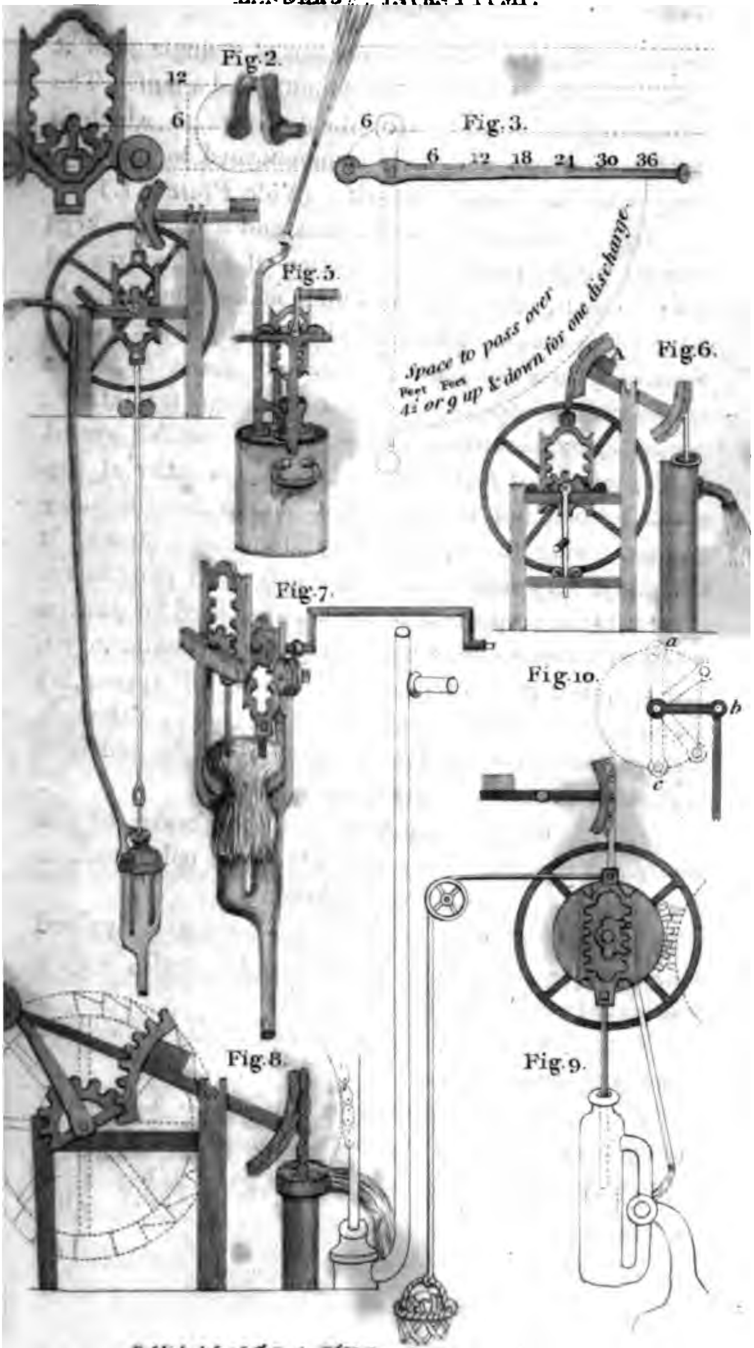
Fig. 4, represents the rack and semicircle applied to a forcing and lifting pump for deep wells, with a balance beam to equipoise the rods.

Fig. 5, a small portable garden or fire-engine, on the same principle.

Fig. 6, the same apparatus applied to a common pump, by which will appear its superiority, as for example, suppose 300 lb. to be lifted by a lever, as *Fig.* 3, with

Plate.XI *page.86*

LANDER'S PATENT PUMP.



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with a power of six to one, a force of 50 lb. is required. If the rack and semicircle is applied with a beam, as here, to a pump of this size, one-half of the 300 lb. will be abated by a weight on the balance or beam at A, that is, 150 lb. on each side. If the semicircle be six inches from the centre, and the winch 18 inches, it will make a stroke of nearly 18 inches while the winch passes over a space of nine feet; the common handle will only raise six inches while it passes a space of nine feet; for the power, or hand, having 50 lb. to contend with, while the other has only 50 lb. and the quantity of water produced is as the length of the stroke, which is almost three times as much, or nearly 18 inches for six, besides the advantage of having no check at top and bottom of the stroke, as with a common handle (which takes up considerable time), and its being a better motion for a man to work, as well as other kinds of power.

Fig. 7, two racks and semicircles, to be worked with any number of men, as the chain pump, and produces an equal quantity of water with a deal less expense, discharging the barrels alternately.

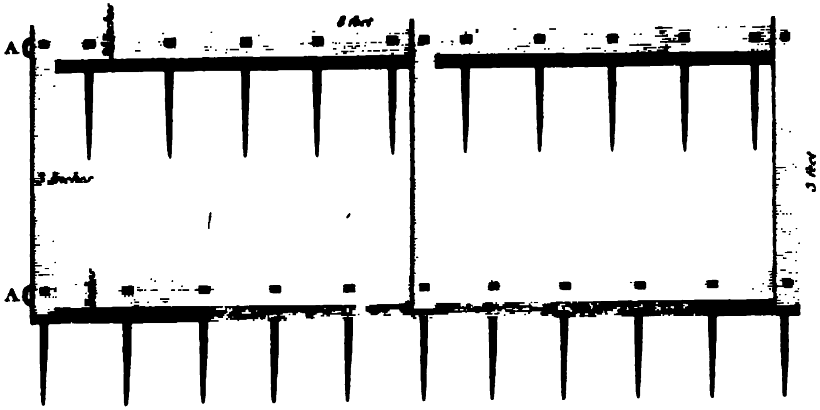
Fig. 8, a large engine worked by a water-wheel, or other considerable power, for raising large quantities of water for lands, or draining mines, &c. If required to raise any height, the adjoining pump may be used.

It is submitted, whether a hurdle supported on the principle of the drying-clothes horse, instead of shores or stakes, would not be an improvement upon the common mode of using hurdles. These hurdles should not exceed six feet in length, and three feet and a half in height. The top, bottom, and sides of the hurdles, should be secured with iron virrels; the sides made of split oak poles, as also the feet, which should be three feet long. The sil, or lower bar of the hurdle, should be secured to the feet by an iron pin passing through them, and secured with a double spring-share. The estimated expense of hurdles so constructed, with ash, withy, hazel, birch, &c. for its other parts, would not exceed 18*s*. or 20*s*. per dozen. The present expense of hurdles in different parts of the county, is absolutely enormous, and calls for every assistance and conjecture that may lead to its reduction. Very few of the flock-masters, where the light-wattled or withy-hurdle is not to be procured, have less than from 50 to 60 dozen of split oak lift-hurdles in constant use for penning off their green crops, and night-folding upon the fallows. These hurdles are made seven feet long, with four horizontal rails, three perpendicular standards, and two sloping bars, all well secured and closely rivetted together. In the Isle of Wight and some other parts of the county, they cost new from four guineas to 4*l*. 10*s*. per dozen, and a new stock of four dozen is annually required to keep up a stock of 40 dozen of these hurdles.

One of the most economical contrivances for haying sheep noticed upon the survey, is that of Mr. Smith, of Yaverland, in the Isle of Wight. It consists of two parallel boards of inch plank, which form the lower sides of the crib, and which are nailed at bottom to upright posts (let into the ground), about three feet high, and four inches by two in substance. A top-rail extends along the uprights; below this, and between the bottom side planks, are two rails of an inch and an half by four inches in thickness, secured in like manner to the upright posts. The width of the crib is about two feet six inches in the clear, and allows sufficient room for the sheep to reach the hay from either side of the crib. The roof under which this foddering crib is placed is open all round, and supported by posts at the distance of ten feet from each other. It is lightly constructed, well thatched, and affords an excellent stowing place for spare hurdles, or any of the farming implements, when not in use.

As long experience has taught the Norfolk farmers, that the apple of the turnip will never form well, but when the root is the least compressed with mould; and as the autumnal winds do not sometimes sufficiently shake the plants for this purpose, the turnips are frequently harrowed, even when quite rank, and completely covering the ground with a harrow constructed in the following manner: two parallel beams about eight feet long, connected together with three cross bars three feet in length. The scantling of the long beams is about four inches square, sometimes made of pine or fir, but more generally of ash. *Perpendicularly placed with, and in each beam*, are tines, at the distance of nine inches apart, and in each other's opening: these tines are made *thirteen inches long, round*, and about eight-tenths of an inch in diameter, and consequently from the little impression they make in the ground, carry the top of the harrow about a foot above the surface. This harrow is always drawn by one horse crosswise over the warps or ridges, and in such a manner as to plum the furrows. The boy always walking alongside of the harrowed work, alternately leading the horse with his right and left hand, and never giving to the turnips more than one tine, or harrowing more than once in a place at the same time.

It is common in that country for about eight acres of turnips to be so harrowed in a journey of five hours; two of which are commonly performed by the same boy and horse per day. (Vide *Plate* XII.)



B. The Harrow is represented this Length for the convenience of being drawn through the gateways without unhitching the Horses, but as when not on its sled it should always be thrown upon its back in transporting it particularly across bye ground from one field to another an addition to its length of one foot is recommended by the Surveyor and which may then be always passed through the gateways by hitching the Horses to the Staples A.A.

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CHAP. VI.

ENCLOSING.

Cases by Act of Parliament.—These are numerous, but, where the awards have not yet been enrolled, imperfectly ascertained. In most of these enclosures, it is much to be regretted, that so few instances occur of a land commutation having been previously agreed upon for the great and small tithes of such districts so enclosed. It is unquestionably a great point gained, when lands are laid into severalty which heretofore were subject to a half-yearly inter-commonage, as also to place wastes and commons of little present value under circumstances by which their native qualities may be brought forward to the public good. The great object, however, of such enclosures is, under this view, but imperfectly obtained, whilst the enclosed allotments are still left open to the claims of the church, and lay impropriator, and which must ever operate as a fatal check to that spirit of improvement which originated the idea of severalling such lands, and carrying subsequent cultivation upon them.

The objection to a land commutation, from the general insufficiency of the clergy to manage a tithe-farm, appears totally unfounded within the view of the Author of this Report; as every clergyman within the range of his acquaintance in the counties of Cambridge, Essex, Devon, and Hants, in anywise devoted to agricultural pursuits and enquiries, exhibits,

withou

without exception, in the management of their glebe, and other lands which they may occupy, examples the most praiseworthy and practically good, of any other of the occupiers in the country. Admitting, however, that this was not the case, and that there was an absolute incompatibility (which is monstrous to suppose) between such temporal avocations and the spiritual functions of the clergy, still empowering them, or even requiring them, to grant leases under the sanction of the patron of the living and the bishop of the diocese, corresponding in time with the ordinary tenures of the farming occupations of the parish, would place all such ecclesiastical interest upon a footing similar to that of the lay property of the country, beyond which it does not appear either reasonable or necessary that such a consideration should extend. In no one instance has it yet reached the Author's knowledge, that an unqualified objection has been made to the payment of tithes. The tenantry all allow, and admit the principle in common with their rent. This difference however, exists between them—that whereas the annual reserved rent is agreed upon and fixed for a period of seven, fourteen, or twenty-one years; with the clergy or lay impropriators it often happens that the tenths are not ascertained or demanded till within a few days of harvest, when the alternative is either an exorbitant composition, or the tenth part of the crop is drawn and taken in kind. It is this state of anxious uncertainty with regard to the payment of tithe, that is so just and generally complained of; and should the principle become still more general, which seems spreading in many parts of the county, that no fair estimate can be made but just before harvest, who knows to what extent such a practice may lead, and whether it may not on a future day become

come the only fixed and approved rule for ascertaining the landlord's rent. The state of degradation to which the tenantry of a country may be reduced, by the gradual introduction and adoption of such measures, can only be conceived by adverting to the deplorable state and condition the national territory must consequently be reduced to at the same time.

As the advantages of enclosing can admit of no question, and as these have been often and much more ably discussed than can possibly be done by the Author of this Report, he has therefore little farther to observe in this place upon that subject, than to subjoin his most earnest prayers, that the evils above shewn, as most likely to arise from a mistake in not resorting to a principle of reciprocity, and the fair and liberal means of securing the revenues of the church and lay impropriator, in the event of an enclosure, and otherwise—may be timely averted, by the substitution of measures bearing an opposite tendency to those now complained of, and which, in his opinion, seem likely to lead to such a fatal issue.

In the Isle of Wight there are some common-fields, and commons of waste, the enclosing of all which, and exonerating by a land commutation from the future payment of tithes, would contribute most essentially to the improvement of that country.

In many places it may be objected here, as well as in the more northern parts of the county, that there would be a difficulty in raising live fences; but should that objection be considered as formidable, but of which, by pursuing proper steps, the Surveyor entertains much doubt, still the end of an enclosure would be greatly answered, by the laying of the small detached parcels together and in severalty, and discharging the whole from the payment of tithes.

CHAP. VII.

ARABLE LAND.

SECT. I.—TILLAGE.

DISTRICT I.

THIS in most parts of the county, particularly in the chalk district, is found difficult and expensive: in the valley of the Avon it is light and easy.

The wheat husbandry in the light tender soils in the woodland district, is various: the breaking crop being sometimes grey pease, sown broad-cast upon the flag as a preparation for wheat; wheat in a fourfold course of crops upon clover-lay; also after early turnips, which are either made the breaking crop from lay ground, barley, wheat, or oat-stubbles, winter-fallowed (for them); or wheat after winter or summer tares. The former sometimes, but not always, followed by an intermediate crop of early turnips in preparation for wheat.

In the first of these modes in preparing for a crop of wheat, after the pease are harvested, every exertion is made to get the pea-arish clean, and in a condition to receive the dressing previously prepared for it; and which is composed of fresh mould or chalk, and sometimes both, mixed with farm-yard and stable dung; chalk, and hedge-row or ditch mould, and road scrapings without dung. The whole mixed with dung, or dung by itself, and without any mixture whatsoever, in such quantities as can be most conveniently procured, and consequently varying on different lands, as well as in respect to the condition that such lands may be in; but which, on a general average, was very rarely found to fall short of five guineas per acre, admitting in the account the value of the dung, and every expense attending the other materials, turning, filling, carting, and spreading included.

The last operation performed, and the dung or mixing turned neatly under upon ten-feet ridges, the prepared seed, which is done by steeping it in brine or chamber-lye for five or six hours, and afterwards drying it with fresh slacked lime, is sown broad-cast, about nine pecks to the acre in the early part of the season, and ten pecks afterwards, dragged and harrowed in: the furrows struck out with a double or single mould-board plough, and the land, if required, left gripped and water-furrowed. This wheat is usually fed off in the month of March, and then rolled crosswise with a heavy three or four-horse roller: average produce, 24 bushels of 58½lb. each per acre.

Although the above preparation of the seed-wheat is done altogether with a view of preventing the disease called the smut, still experience shows that this operation is of little avail, unless the seed is frequently changed: the seeding with old wheat, is also found to be far less liable to propagate the disease, than the produce of the last year's crop.

The second preparation for wheat, on such lands as consist of a mild sand and gravelly loam, of a good staple, an open subsoil, is, where the young seeds have been dunged, or dressed with Berkshire peat-ashes at the rate of 25, or the common turf or peat-ashes of the country, a full waggon-load, or 66 bushels to the acre. This dressing is applied in the course of the preceding winter, and the first shoot of the seeds is frequently taken off by the ewes and lambs. The grass afterwards is generally mown once, and sometimes twice; after which, and the after-grass pared close down, the clover-stubble is neatly ploughed under and into the same sized ridges as those just noticed. The prepared wheat is sown broad-cast, nine pecks and a half to the acre, at the beginning of the seed-time, but ten and a half and eleven towards the conclusion of the season: harrowed in, the furrows struck up as before, and the produce and quality generally agreeing with that above stated.

A third preparation for wheat upon the same description of land is, that of its succeeding an early crop of turnips, always fed off in time for the wheat-sowing to be completed by the middle of November. In this case, the necessary tillage is commonly effected by one ploughing, with proportionable drag and harrowings. The season being often thus far advanced before the operations for putting in the seed are completed, the quantity then required and applied is seldom less than eleven pecks per acre, when harrowed; but when ploughed under, one peck less per acre is considered as fully adequate to the purpose. In putting the seed under furrow, it is necessary to attend very particularly to the sowing of the land, that the ridges do not become over-seeded upon the tops; and prior to the last or making up furrow, a small balk or comb should be left, which being strewed with fresh seed, should be split and struck up with a double mould-board plough; or if the furrow is required to be shut up close, and to a good full pitch, about one half of the bottom of the furrow lying on the coulter or land side of the single plough, should be taken up with the balk; and thus the furrows may be left as shallow or as deep, as wide or as narrow, as the farmer chooses. For obvious reasons, this ground is not harrowed after the seed-earth, but left as rough and as open as possible to the action of the winter frosts. The utmost care should be taken that not less than four and a half or five furrows are carried to the yard, and that the field is finally left well gripped and water-furrowed. Crops of wheat so put in upon the light and gentle loams, usually exhibit a far more regular plant, and that plant far less liable to be root-fallen, or to be cast upon the surface by the alternate freezing and thawing of the ground in the course of the ensuing winter, than where, under similar circumstances of soil and preparation, the seed was harrowed in. Upon the whole, this mode of putting in the wheat crop, in all cases where the seed-earth would not rise tough and livery, in the estimation of many intelligent farmers, is found to exceed the harrowed-in wheat from two to three bushels per acre, and always (from its being less crippled, or composed of under-corn) exceeding the harrowed-in sample by one and a half or two pounds per bushel.

Upon the stronger lands in this District, the practice is, either to give a thorough winter and summer fallow for wheat, or to make beans the preparation for wheat, as before noticed in respect to pease; but with this difference, that the beans are set or dibbled, instead of being sown broad-cast. The same exertions take place on the bean-arish, before observed in cleansing and preparing the land after pease. This labour, however, is much lessened, from the cleaner condition of the land after beans, and which most probably underwent a closer hoeing than what could conveniently have been bestowed upon the pease. A dressing of chalk and dung is much approved of in this and the following preparation, direct for wheat; but it is not always in the power of the farmer to accomplish this purpose, however well inclined, and assured as he may be of its beneficial consequences. When chalk as an alterative, and dung as a feeding manure, are applied together, the expense of the whole falls little short of 8*l.* per acre. With or without this dressing, the wheat is always sown broad-cast, 10 pecks to the acre upon five-feet lands, and harrowed in. In cases of this sort, the field is always left well gripped and water-furrowed; and should there be a pressure for spring food in the month of March, the wheat is fed during a dry spell at that season, afterwards rolled, and in most respects treated in the manner before noticed. On a supposition that one half of the bean-wheat is sown after the dressing mentioned, the average produce of such crops may be taken at 26 bushels of 61½ lb. each per acre.

When a winter and thorough summer-fallow is intended for wheat, the great object of the farmer, is previously to accomplish upon the lay ground a clean chalking of 10 waggon-loads, equal to about 700 bushels of chalk per acre—an improvement seldom accomplished on the clay lands through this District at a less expense than 6*l.* per acre. The intention of this timely application of the chalk is, to expose it to the action of the winter's frost, that it may melt down and incorporate with the top-mould, during the successive tillage operations in making the summer-fallows, in the management of which, great care is taken from time to time to encourage the growth of seed-weeds, that they may be more effectually eradicated from the soil after vegetation. The expense of these labours, as will afterwards be shewn, are very considerable; but although they are not stated to form a part of the constant routine in the cultivation of the strong tillage lands, they are still, in the judgment of many experienced well-informed men, deemed indispensable occasionally to resort to, as the only means of sweetening the sour oak-tree soils, and for preserving it in a state of productiveness. The working that such lands may require, must very much depend upon the seasons. The condition the lay ground was in before it was broken, and the manner in which those labours have been begun and prosecuted, all depending upon the judgment and activity of the farmer in the outset of his operations, and following of them up in such a manner as to effect his purpose with as little labour and expense as possible. The fallow being made, the last earth is to cast the field into five-feet ridges, upon which the wheat is sown broad-cast, about ten pecks to the acre, dragged and harrowed under; and the field, left free from any likelihood of injury by the ensuing winter rains, will yield an average produce of 26 bushels, of the like quality or sample to that last stated, per acre.

When land of a light and dry nature is in such a condition as to authorize the farmer to sow rye, or winter tares, or perhaps both, on a wheat-stubble, turned under immediately after harvest, these are usually fed off, in sufficient season to get the same land in preparation for early turnips, and which, as before noticed, are always fed off in time to allow of wheat being put in before Christmas; or,

When the condition of the heavier land is such, as induces the farmer to plough a former wheat, barley, or oat-stubble, for the purpose of sowing it with winter, spring, or summer tares; these being fed off in like manner with other green crops, the land in both cases is conceived to be sufficiently invigorated, by the teathe left in penning off such crops, to sustain a crop of wheat afterwards; and whether the soil is of a light or stubborn nature, it seldom fails to yield a produce of three quarters, or 24 bushels, per acre. In these cases, an almost incalculable advantage is seen to accrue from the culture of green crops: here a crop of wheat is obtained without dung or fallow, and that in addition to the advantage yielded to the farm, stock, and cattle, by the pasturage of the intervening green crops.

It will sometimes happen, that a part of both winter and spring tares are either left to stand for a crop, or are mown for soil and consumed in the house. In such cases, as soon as the crop is harvested, or the land otherwise finally cleared, it is worked to be in time to meet the other part of the fields bearing tares, rye, or early turnips fed off; when such tare ground from which its crop has been removed or perfected, receives a complete cleansing and a good coat of dung, in time to be sown with wheat with the other parts of the same shift or fields.

The common-field husbandry of this District has been much improved of late years, from the ordinary routine of two crops and a fallow, to, first, a bastard summer-fallow for wheat, when there is usually applied 12 loads of home dung, or sheep-folding, with ewes, lambs, and wethers, about 2500 head per acre. The seed required is from nine to eleven pecks, which is sown broad-cast and harrowed in, and supposed to yield an average produce of 22 bushels per standard or statute acre. The whole of the wheat-stubbles are turned under for barley or oats; and with a part of these crops, clean clover, or clover, trefoil, and ray-grass, is sown: the remainder of the shift, by agreement among the parishioners, lies open for the culture of pease, beans, tares, and turnips, and which are always off in time to come in with the short summer-fallow from the lay ground in preparation for wheat.

DISTRICT II.

Upon the tough red flinty, strong grey chisselly, and tough brown shravy loams, a thorough spring and summer fallow is the most usual preparation for wheat. This process begins about Candlemas, by ploughing a clean full pitch out of an old lay, or recent oat-stubble: this is followed up during the succeeding summer with two or more clean ploughings, besides the seed-earth, and with such proportionate intermediate dragging, harrowing, and rolling, as may be required to cleanse the land, and completely make the fallows. Previous to the last or sowing earth, 12 or 14 loads of good farm-yard or stable dung, or during the fallowing process, about the same number of sheep before-mentioned, are folded per acre. Great attention is paid to the setting out of the lands for the seed-earth, so as to make them correspond with one or two breadths of the nine or eleven-share ploughs, and which is generally used upon a stale furrow; or after the last ploughing has been given to the land for three, four, or six weeks previous to the sowing of the wheat, this machine is worked according to the breadth of the ridge one time (or only once in a place), leaving the ridge scored into drills or channels, corresponding with the number of shares or rather coulters in the machine, over which drills the wheat is then sown broad-cast, from three and a half to four bushels per acre, and afterwards harrowed lengthwise with two or three light harrows drawn by two or more horses, and usually walking in the furrows, until the ground appears sufficiently dressed, and that the seed is covered. The furrows are then struck up with a double or single mould-board plough, and the fields are left carefully gripped and water-furrowed. In some parts of this extensive District, it is usual upon lands of this description to plough in one cast of the seed, and harrow in the other, and in these cases the seed required is stated only at eleven pecks per acre. The average produce either way on these soils, and under the preparation and management here noticed, is 28 bushels of 62 lb. each per acre. It will sometimes happen, that these strong loams receive only a late or bastard summer-fallow with sheep-folding for wheat, on which occasions, seeds are either sown in the spring of the year upon the wheat, or the ground is left open for the wheat-stubble to be turned under in the month of February, and sown with pease or beans: the arish is well brushed and cleansed, to receive the ordinary quantity of dung for wheat sown, and let in with the nine or eleven-share plough before the middle of November.

Although it is deemed indispensably necessary to proceed from time to time in the management of the strong loams in the manner here stated, it must only be considered as a labour occasionally occurring in the husbandry of such lands; beans and pease are often, and oats sometimes, sown upon the flag, and made the breaking crops, and precursors to a crop of wheat. The pea or bean arish is worked immediately after harvest in the manner before noticed; is cleansed and dunged in time to meet such other parts of this shift as may have been in preparation for wheat, by a thorough winter and summer fallow, as well as those lighter parts of the occupation which may have been cultivated with winter or spring tares, and the early tankard turnips, all of which are regularly penned and fed off in time for the whole wheat sowing to be finished before the middle of November; and which practice is commonly attended with results, little if at all inferior to what has been just stated. When oats, as above-mentioned, precede a wheat crop, the oat-stubble is commonly sown with winter or spring tares: these are fed off when the land is dry and in good condition; and the dressing thus procured to the land is frequently trusted to, as a full and ample security for the usual crop of wheat.

So very great is the difference between wheat sown at Michaelmas, and that sown three months after upon these strong lands, although a good crop of early turnips may have been penned off upon the land, that the utmost exertion is now made to get the whole of the wheat crop in before the middle of November; but when the farmer finds that that point is not to be accomplished in time, the turnip land is carried forward for a crop of barley. It is also frequently found impossible to get the ruta baga off in time for a spring crop; in which case the early tankard turnip succeeds, and of which the ground is always completely clear, to admit wheat being sown in due season. The produce of wheat seldoms falls short of 30 bushels per acre, and of an equal quality with that obtained from off the same lands by a thorough winter and summer fallow.

It has already been observed, that there are two sorts of what is provincially called shravy land. The wheat husbandry upon that which consists of an assemblage of small flat flints intermixed with a strong tough brown loam, is included in the above statements.

The more tender soils often occurring in the vallies, and lying upon a deep dry bed of sharp pebbly gravel, are under a different management; their breaking earth being occasionally for turnips, followed by barley and clean clover: the first year's lay is broke up about Michaelmas; wheat sown upon the flag earth, and harrowed in. This, with the assistance of soot or ashes, or the seeds having been dunged the preceding winter, seldom fails of affording a produce of 24 bushels of 58½lb. per acre. The wheat arish, in this case, is winter-fallowed, and brought forward with dung or sheep-folding, to be sown with the early tankard turnip. To prevent a too frequent recurrence to clover, and to afford that variety in the rotation of crops which such soils particularly demand, the turnips are fed off in time for wheat, sown broad-cast, three bushels per acre, any time between Michaelmas and Candlemas, and yield an average produce in quantity, but much inferior in quality, to that above stated. The wheat-stubbles are either winter-fallowed for spring corn and seeds, or seeds are sown upon the turnip wheat about the middle of May, and seldom fail in affording a very good plant.

Whether the soil consists of a dry chalky rubble, or approaches a bright hazel mould, the open field, or tenantry lands, as well as those that are in severalty, are generally first opened about Midsummer, by half-ploughing or raftering, and which with one, or at most two succeeding earths, with proportionate dragging, harrowings, and rolling, the toughest and most matted green sward is readily subdued. This being effected, dung, or sheep-fold, or when the late fallow did not take place, but that some prior green crop has been penned off upon the land, forms the usual manure for procuring crops of wheat on such land. The seed required is about three bushels and a half per acre, sown broad-cast, and let in with the nine or eleven-share plough; harrowed twice in a place lengthwise, and then across the ridges, until the seed is as completely covered as may be deemed necessary, or that such a mode of proceeding will admit of; but when the necessary dressing has not been completed before the wheat is sown, folding in dry weather upon the sown wheat, and even upon the green wheat between Christmas and the middle of April (the ewes and lambs feeding in the day-time upon turnips or in the water-meadows); is found to produce a very great advantage to the ensuing crop. By this practice one instance occurred upon the survey upon lands of this description, where the improvement made was such as to yield a produce of 46 bushels to the acre; it is always found most abundantly to answer, by giving that consistence to the surface of these soils, so favourable to the future growth of wheat, affording a more uniform plant, with much longer and better set ears at harvest. This practice is continued until the lambs and the teathe of 2500 ewes or other store sheep, for one night is reckoned a very ample dressing for an acre of land. It is further to be observed, that a second fold is pitched upon a sound dry layer, which is always ready to receive the flock whenever the shepherd finds the wheat land too wet, or that there is an appearance of falling weather in the course of the night: by these means, a considerable addition is made to the former extent of sheep-folding for wheat, as well as for grass and other dry land. The average produce of wheat on this sort of land when thus managed, is given in at 25 bushels of 60 lb. each per acre.

The first process in breaking up the light down lands, whether their soil consists of a dark vegetable, or light brown (provincially called hazel mould), is to pare and burn at an average expense of 35*s*. per acre; sometimes, but rarely, sow turnips, as the early wheat seed-time upon these downs prevent the turnips from being fed off in time to be succeeded by wheat. The turnips therefore, when such become the first crop after burning, are consumed in the course of the winter, and the land is carried forward for barley. The more general practice however is, to sow the burnt land direct with wheat, any time between the middle of August and the end of September. This land will seldom require more than one or two earths at farthest, after the ashes are spread, when the wheat is sown broad-cast upon ten or twelve paced lands, and let in with the nine-share upon as stale a furrow as they can conveniently procure. The quantity of wheat usually sown upon these light lands, is from three and an half to four bushels per acre; covered with a light pair of harrows, working length and crosswise, of the nine-share drills, and is stated to average a produce (first crops only) from the down state, of 24 bushels per acre, weighing about 57 lb. each. As a considerable expense must necessarily have been incurred by the occupier in paring, burning, and the subsequent labours required in thus reducing these ancient downs and sheep-walks, and as he is well aware, that after the first two, or perhaps three crops, no possible advantage can accrue to himself or family, he is generally, on this occasion at least, willing to take time by the forelock, and is clear for following up the crop of wheat by two, or perhaps three white straw crops in succession; with the last of which, clover, trefoil, and ray-grass is sown; there being but little force or energy, by this time, in the soil to sustain these seeds, the coarser weeds and grasses take place of the former sweet and valuable sheep-walk; and in this condition it remains a melancholy monument of the mistaken zeal of the projector, who thus working upon the avidity of the farmer, has induced him to commit an injury upon the property of another, from which it is more than probable that it will not recover for many ages.

When the early tankard turnip is fed off in time for the land to be sown with wheat before the middle of November, and that this crop has been sown either upon the light or stronger land, the seed required upon the light soil is seldom less than four, and upon the heavier land, three bushels per acre. The high light down lands are always the first sown, and the seed in most cases is let in with the nine-share after once ploughing.

The practice of several gentlemen in this District, upon the more open and mellow lands, is that of sowing wheat upon a clover-lay after once ploughing: the seed is sown broad-cast upon the ploughed ground, previously rolled, but the quantity used is seldom less than three bushels and a half, average produce 24 bushels of 60 lb. each per acre: part of these wheat-stubbles are ploughed under immediately after harvest, and sown with rye or winter tares for spring food, followed by turnips for *early* use, fed off, and the land again sown with wheat succeeded by spring corn and seeds; another part of the same lands shall be winter-fallowed for spring tares, followed by turnips for *late* use, and the remainder of the winter-fallowed stubbles sown with barley; but such other of the wheat-stubbles as have not been winter-fallowed, are sown with oats upon the first earth, and which takes place as early as possible in the month of February.

On some of the lighter lands which lie convenient to the homestead, the practice is to winter-fallow, and manure with the cart or sheep-fold for turnips: these are generally of the early sort, which are fed off in time for the land to be sown with wheat before the middle of November. This turnip land seldom receives more than one good full pitch, upon which the whole of the seed is sown, dragged, and harrowed in, or one cast is harrowed and the other ploughed under, or the whole seed is neatly ploughed under furrow, the ploughmen carrying about five furrows to the yard, and the work closed and finished in the manner before noticed. The seed used upon these occasions is about three bushels, and the crops are stated to yield an average produce of 24 bushels to the acre.

When wheat has previously succeeded to pease, beans, tares, turnips, or clover, in the next series or rotation it is commonly the practice in this District to winter-fallow for that crop, particularly on the chalk rubble, the bright hazel, or even the more mild and open sand and gravelly loams.

Upon the stronger lands it has in one or two cases been heard of, that a ton and a half, or two tons of clover, when in full bloom, has been turned under per acre, as a dressing for a succeeding crop of wheat, and which consequently must have been put in above furrow, and covered as light as possible with the seed-harrows. On these occasions, seldom less than three and a half and four bushels of seed have been employed, and the land afterwards compressed as much as possible with a heavy roller.

taller. The good effects of this dressing on such particular soils, have been stated to continue for two or three years, particularly in the more loose and open state in which it has left the soil; yet none of the persons who have once adopted this mode of manuring for wheat, were heard of by the Surveyor as continuing the practice. The cases referred to were under different circumstances, the one being upon light, the two others upon stronger land; the average produce stated from the light land was 22, and from 32 to 36 bushels per acre upon the stronger and better land.

The old husbandry, of winter and summer-fallow for wheat, then barley, or oats, followed with grass for two years, or two years' crop and two years' grass and fallow, still continues in many parts of this District: it must, however, be confessed, that this practice is annually giving way, particularly upon the milder loams, to a short summer-fallow for wheat, followed by turnips, barley, and seeds, with wheat again upon the clover-lay; or that the lay ground lies over until the ensuing Christmas, when it is broke up and prepared for early turnips, succeeded by wheat, or turnips for late use, followed again by spring corn and seeds.

The average weight of 20 samples of wheat procured in one part of this District equalled 58¼; in another part the same number of samples reached 59½ lb.; and in a third quarter the like number of samples equalled 60¼, the struck Winchester bushel. The first sample included a large proportion of smutty wheat, which had been purchased by the miller with a view of cleansing and manufacturing them into fine flour, and in which he succeeded, by the discovery before alluded to, in the fullest extent: the two other averages were deduced from the ordinary merchantable wheat sold at mills.

DISTRICT III.

The wheat husbandry pursued on the mild gravelly loams in the Vale of Petersfield, and upon all the malmy loams of this District, is either to dung or ash the young clovers, which after being once and sometimes twice mown, the clover-lay is neatly ploughed under, and wheat prepared in the manner before noticed, is sown broad-cast, from 12 to 14 pecks per acre, harrowed, and occasionally trod in with sheep, yielding upon such lands an average produce of 26 bushels per acre. The wheat arish is frequently turned under immediately after harvest, and sown with rye and winter tares, also with brush, or stubble turnips, for spring food; all of which intermediate green crops, are generally in preparation for a more regular crop of turnips for early or late use.

Upon the light sandy lands east of Woolmer forest, early turnips in preparation for wheat, and wheat upon the clover-lay, are cultivated with equal advantage; both, however, requiring to be sown before the middle of November. This is usually put in in the same manner, and subject to the management before stated, averaging a produce of 25 bushels, of 59 lb. each, per acre.

Upon the clay loams (which in some places are found very strong, though only partially occurring) in this District, a winter and summer-fallow for wheat is occasionally resorted to, and which, under the circumstances before-mentioned, is usually accompanied with similar results.

Rags are often substituted for home manure upon the strong lands in this District; these are procured from Portsmouth and from London. About 7 cwt. are applied to the acre, which being cut small, are sown over the drills made by the nine-share, and with the seed-wheat are harrowed in together. The first cost, carriage, cutting and spreading, will generally amount to about 3*l*. per acre, and are supposed to produce a more lasting benefit in the ground than the same value of home or town manure.

From the disposition of the malmy lands to run together, and bake very hard upon the surface after the winter downfals in the spring of the year, the harrowing of the wheat plant at such times, as a means of loosening the crust in which it appears to have been fastened, is a remedy very frequently resorted to on such occasions: the operation is commonly performed crossways upon the ridges, and as often repeated as is deemed necessary, and until the wheat plant has closely covered the whole of the field; the last harrowing is generally accompanied by a rolling with the heaviest roller the farmer may have it in his power to procure.

DISTRICT IV.

The occasional thorough winter and summer-fallows are deemed indispensably necessary for the continuance of fertility on the strong loams of this District, and which with the dung and other dressings procured from Portsmouth, Gosport, and other places within a day's journey of such towns, or a short cartage distance from the boatable waters, with which this part of the county is so generally supplied, enables the occupiers of such lands as are under a fair and reasonable course of management, to obtain in the broad-cast practice, upon a general and moderate computation, a ten-fold produce of wheat for the quantity sown; and which may be taken at a general average, at 13 pecks per acre, commonly upon a stale furrow, and let in with the nine or eleven-share plough in the manner before mentioned.

The quantity of rotten, town, farm-yard, or stable dung, applied per acre, either separately or mixed together, with hedge-row, ditch, or other mould, is about four heaped waggon loads; the first cost of which, purchased in any of the large towns, is seldom less than 15*s*. per load; to this must be added the expence of cartage, and which, whether by land or by water, or partly by both, cannot, on a general computation through this District, amount to less than 10*s*. per load more, making the ordinary expense of manuring an acre about 5*l*.

Upon the sand and gravelly loams, as well as those of a still lighter nature, the wheat crop is preceded by a short summer-fallow, early turnips, or clover: in the first case, the ground of the second seeds is sometimes raftered, but more generally ploughed clean, about Midsummer. After destroying all appearance of the former green sward, about the same value of dressing just noticed is applied per acre. The seed here required, corresponds nearly with the average last mentioned, and which is frequently put in upon a stale furrow with the nine-share plough, and which seldom falls short under this management of yielding a produce of 26 bushels per acre.

A dressing to the value of about two-thirds of that before stated, is commonly bestowed upon the same character of soil when fallowed for turnips, and which being of the early kind, are fed off in time for the land to be sown with wheat in the manner before noticed; or, if a later kind, they are carried through the winter, and followed with spring corn, as already stated.

Whatever difference there may have been in the ordinary allowance of manure for the turnip crop on a four or five-course rotation of management on these lands, that deficiency, be it what it may, is often made up by manuring the young seeds as soon as possible after harvest, or during the frosts of the ensuing winter; these are mown or fed as usual, and the clover-lay is turned neatly under at Michaelmas, rolled close with a heavy roller, the seed sown broad-cast, harrowed, and upon the lighter lands occasionally trod in, by driving sheep over the fields; and which are stated to yield on an average, from this practice, about 26 bushels per acre.

The average weight of the wheat produced from this management is found to vary from 58½ to 61 lb., the struck Winchester measure. The heaviest samples, when equally well harvested, are uniformly produced upon the heaviest lands.

A few winter tares are sometimes cultivated after wheat upon the stronger loams, such lands, however, are more frequently winter-fallowed for barley, or sown with pease or beans, upon one earth in the month of February.

The wheat stubbles in the more tractable loams and lighter soils are often occupied with rye and winter tares, stubble turnips for spring food, or spring tares for later use; and all succeeded in the course of the following summer with turnips, as a crop for autumnal, winter, or spring food.

In many parts along the shores and inlets of this District, sea-weed is collected and rotted with town, farm-yard, and stable-dung, and by long experience found to answer extremely well; an additional quantity of manure of an equal, if not superior quality, is thus produced, and at a very reduced expense—a resource that would be far more generally resorted to than it is, did not the bold and cliffy character of the coast, in many places present an impassable limit to these exertions.

In addition to the different modes of conducting the wheat husbandry in this District, now mentioned, we may state, that winter and spring tares are sometimes sown upon an oat-stubble (the last of the general series of white straw crops), these being regularly penned off, wheat is again made to succeed upon the tare ground, a practice which, though not before noticed, is by no means uncommon in the preceding districts.

Late or short fallows for wheat are sometimes made after mowing the first seeds, on which occasions the ordinary dressing is applied previous to the last earth, and ploughed under. This practice is found to obtain where the land is not in a condition to warrant the expectation of a tolerable crop of wheat upon the clover-stubbles and where opportunities neither offered for manuring for turnips, or during the preceding winter upon the young seeds.

Clover wheat on the shrave, gravelly, and sandy lands, as well as turnip wheat sown before the 1st of December, are among the other modes of preparation for this valuable crop in this District, and which on the lighter lands yields a produce of 24, and on the heavier ones 28 bushels per acre.

Rape or coleseed is another green crop preparation for wheat in this, as well as in the more northern districts: this is sown about three quarts to the acre, upon a former oat-stubble, and immediately after sowing barley. The food is generally penned off early in the month of October; and after the necessary tillage, the land is sown with wheat, in like manner as after early turnips: seed required, about 12 pecks; produce, supposing there to have been a good crop of coleseed, 26 bushels per acre.

The crops of wheat obtained upon the new enclosures within this District, and where the soil and other circumstances have been regarded as favourable to its culture, are usually after such ground has been marled or chalked subsequent to a crop of turnips procured from the ashes obtained by paring and burning. The seed applied on these occasions is usually about 13 pecks, sown broad-cast, ploughed or harrowed in: produce 18 bushels, of 58 lb. each per acre.

The land being required to be laid into five, ten, or fifteen feet ridges, the horses at seed-time usually walk in the furrows, drawing the harrows, two or three upon a ridge, by swingletrees properly adjusted to equalize the draught, supposing three light seed-harrows, to make them all bear equally on the sides and top of the larger lands. When the land is such as to require its being laid into smaller ridges, it is consequently of a tough and heavier nature, and a coarser harrow is required to cover the seed; these harrows are adapted to the nature of the soil they are to work upon; and two smaller, but heavier harrows, are found necessary to work lengthways upon the five-feet lands. The seed not let in by the nine-share, or sown broadcast upon the clover-lays, is ploughed under as much as possible, carrying about five furrows to the yard; but when the ground is such as to forbid this practice, and that it is even too wet and heavy for the proper application of the nine-share, recourse is had to the harrowing above noticed, for raising a sufficiency of mould, and duly covering the seed.

DISTRICT V.

The wheat culture in this District differs in no essential points from many of the practices above noticed. A thorough winter and summer-fallow is contended to be occasionally necessary for the purpose of obtaining both quantity and quality of corn; not that any objection is urged against the culture of legume or green crops; on the contrary, the locality of situation renders the culture of such crops not only common, but particularly valuable, from the facility with which they are disposed of, and the great price they usually command, whether such legume are raised for man or beast.

A large proportion of this District, as well in Portsea and Haling Island as on the main land, lies in open common-field, and under a three-fold course of husbandry; formerly two crops and a fallow, but of late years the breach, or fallow-field, is very extensively cultivated with miscellaneous green crops, all of which are always off in time to admit the land being prepared for receiving the seed, which, with the residue of such field or fields as may have been under a long or short fallow the preceding summer, previous to the last earth of the fallows, the ordinary dressing is spread upon the land, as also at the close of the preparation after green crops, provided such has not been previously expended for the production of such crops. These are the common preparations for wheat in the open fields of Portchester, Havant, the islands, &c. and which the mean of several statements collected on the Survey averages a produce of about 26 bushels per acre.

Upon the strong loams in the enclosed part of th

District, in the islands as well as upon the main land, the wheat crop is most frequently preceded by a thorough winter and summer-fallow; these fallows are usually dressed with a compost of town dung or other home manure, and which, on a mean of several statements procured in different parts of the District, rarely fall short of averaging a produce of 30 bushels per acre.

Grey pease and beans are also cultivated on these lands, in preparation for wheat: these arish, or brush-fallows, being completely cleansed and manured, the wheat follows, with a result little if at all inferior to the average produce, from a thorough winter and summer-fallow of such lands.

When these loams are found clean after oats or barley, and that they have not been sown with the temporary grasses, they are often cultivated with winter tares, sown immediately after harvest; these being penned regularly off with sheep in the course of the ensuing summer, affords an excellent dressing to such lands, which being afterwards prepared with the necessary tillage for the reception of the seed-wheat, seldom fails in producing less than 28 bushels per acre.

The mild gravelly loams are sometimes sown with early blue, or white pease, or opened for early or late turnips as soon as possible in the spring. The pea arish being cleansed and manured, is with the early turnip ground sown with wheat; the late turnips are carried forward for future use, and the ground is sown with spring corn and seeds, which latter, receiving a light dressing of dung, or about 80 bushels of town ashes per acre, are once or twice mown, when the clover-lay is neatly ploughed under for wheat sown broad-cast, and harrowed in; and in both cases averaging a produce of about 28 bushels per acre.

Upon the long or short fallows in this District, the wheat is frequently put in upon a stale furrow with the nine-share plough. The most commonly received opinion among the farmers upon this subject is, that although the nine-share possesses much facility (and which is often of the very first consequence in a catching seed-time), still the ploughing of the seed under, when it can be properly performed, about five furrows to the yard, invariably secures with less seed a more regular plant, and uniformly proves upon loose and hollow-bottomed ground the most effectual preventive against root-fallen, knee-socken, or crippled wheat, whether sown after pease, potatoes, turnips, tares, cabbages, or any sort of garden-stuff. The whole of the seed being thus placed at a more equal and proper distance from the surface, is less subject to depredation from the larks and rooks; the plant has an opportunity of forming its coronal roots at a proper distance from the settled surface of the field, and which it could not do were the seed deposited above that point, which would not only subject it to be thrown out upon the surface by the alternate frosts and thaws of winter, but the few feeble fibres which might strike from the crown of the plant along the surface, could never be expected to sustain the plant to maturity. On the other hand, and when the coronal roots are formed at a proper depth (say from one inch and an half to two inches below the settled surface of the field), the plant will be far less liable to be lodged by storms and heavy rains; this, however, from their excessive violence, or the heaviness of the crop, taking place, the foot-hold the plant has now in the ground, so long as there is any sap or growing vigour in it, will enable it to rise from a temporary prostration, and preserve it in a safe and more erect posture until its seed is ripened, and that it is ready to be shorn.

The most approved season for sowing wheat in this District is as early as possible after Michaelmas. The late sown wheats, if any after Christmas, are universally subject to mildew, particularly in the islands, and along the shores of the harbours upon the mainland; but when the wheat is sown in due season, it is not represented to be nearly as liable to be affected with this disease.

DISTRICT VI.

The wheat husbandry pursued in this District, is to winter and summer-fallow, or to let the preparation for wheat consist of a previous brown straw crop of pease, beans, or tares. These arishes are always dressed and frequently manured in the manner before noticed. Oats are also made the breaking crop upon these lands, which are sown upon the first, or flag earth, and their stubble winter and summer-fallowed for wheat. The reason assigned for this latter practice carries with it no inconsiderable force: the inverted green sward, when under a crop of oats, becomes completely rotten, or is at least made so very tender by the ensuing winter, when it is again turned towards the surface, that one-half of the labour that would be required to effect its destruction, if attacked within a few weeks of its green state, is saved (by time and the peculiar position in which the green sward is placed during summer), and as upon such occasions every effort is made to give the wheat land a proper dressing of manure, this is found to operate with more effect, when combined with the old rotten green sward, than could possibly be expected were it applied when the late turf was in a less decompounded state.

When circumstances have not permitted the usual dressings to be applied upon a long fallow for wheat, and that the stubble is clean and in good order, it is no uncommon practice to dung the arish in the course of the winter, and sow upon the inverted dunged stubbles the common horse or tick bean; this serves to vary the application of manure on these strong lands, which otherwise are usually spread upon the clean fallows, the young clover, or in this mode in preparation for beans; the arish of which being well cleansed, the field is ploughed into five or ten feet ridges, and the wheat sown broad-cast and harrowed in. To prevent the too frequent recurrence to broad red clover on these lands, and the more effectually to ensure a plant when sown, winter or spring tares are also cultivated on the wheat stubbles in the place of beans, but without dung, and penned of in preparation for a following crop of wheat. When the clover plant is clean and good, wheat often follows on the clover stubbble; but if the clover fails, and that the trefoil, white clover, and ray-grass, is permitted to remain for three years, this rest and pasturage is considered equal to a dressing of dung, and the old lay is either broken up for oats to be sown upon the flag earth, or it receives a thorough winter and summer fallow for wheat without manure. These heavy lands are stated to lay frequently at rest for seven years, and then undergo the treatment here noticed: on the whole, the quantity of wheat usually sown in the different parts of this District, is not in proportion to what has been noticed on similar stiff soils on the main land, and which may in a great measure be referred to the very little town or foreign manure used here, or as in other parts of the island. The quantity of seed required for these soils is seldom less than thirteen pecks per acre; it is always sown broad-cast upon five or ten feet ridges, dragged and harrowed in, and yielding an average produce of 21 bushels of 62 lb. each per acre.

DISTRICT VII.

Upon the mild gravelly and sandy loams, varying much in their quality, and in like manner dispersed through different parts of the island, the preparation for wheat is sometimes by a short or Midsummer fallow, but more frequently by white, blue, or the Marlborough grey pease, early turnips, winter and summer tares, and clover.

A dressing is universally applied on the short or bastard summer-fallow for wheat, as also upon the green crops ground, provided that all, or a part of the common dressing, which chiefly consists of farm-yard and home stable dung, mixed up with pond and ditch mud, road-scrapings, hedge-row, or other fresh mould, has not been already expended in procuring such green crops. To vary the course from clover wheat, the wheat-stubbles, instead of being sown with turnips, are sown with white or the Marlborough pease: these arishes are then well cleansed and manured for wheat. Winter tares also occur on the wheat-stubbles, fed off early, and succeeded by wheat, which is always sown before the middle of November. In all these cases the wheat is sown broad-cast upon ten-feet lands, ploughed or harrowed in, and on an average, requiring about 12 pecks of seed to the acre; but as there is no less disparity in the circumstances of the occupiers of this District, than there is variety in the quality of the soil, its annual produce of wheat must not be described otherwise than as fluctuating between 18 and 26 bushels per acre. It must here be observed, that the cedar-coloured sand and gravelly loams, are most generally under a four-fold course of management with turnip wheat, or wheat upon the clover-lay. The inferior and grey gravelly sandy loams are subject to a routine of five shifts, two of which comprehend grass and a short summer-fallow; the other three consist of white straw, and turnips, or brown straw crops, or other green ones in preparation for wheat, oats, or barley.

DISTRICT VIII.

This, like every other country of the like nature, affords much variety of soil, although the substratum is ultimately the same. For brevity sake, we shall however divide what appears necessary to notice on the present occasion, into the light and the stronger land husbandry. In the light land practice, the preparation for wheat is either tares, coleseed, or late turnips, all of which are regularly penned off, and for which the ground was ploughed soon after Christmas; or a short fallow began at Midsummer, upon land either subsequently dunged, or manured with the sheep-fold. The seed usually required on such lands, is about 14 pecks, sown broad-cast upon eight, ten, or twelve-pace lands, dragged and harrowed in, and usually averaging a produce of 22 bushels per acre.

Upon the strong, flint, and chisselly loams, a thorough winter and summer-fallow is deemed *occasionally* necessary, for preserving in fruitful vigour such lands; and to which is either added sheep-folding, one head (including ewes, lambs, or wethers) per square yard, or a proportionate dressing, of a mixing similar to that above noticed. The wheat-stubbles are here sometimes sown with winter or spring tares, folded regularly off, and thus a preparation is sometimes obtained for a second crop of wheat.

It is a matter of no small surprize, seeing the general intelligence of the flock-masters in this island, and the great inconveniences to which, from the want of water-meadows, they are put to in the spring of the year, for a supply of food for the ewes and lambs, that hitherto so little attention has been paid to the culture of the Swedish turnip, or to the sowing of rye on the wheat or other stubbles intended for turnips the ensuing season.

The seed-wheat required upon these loams, is about 12 pecks per acre. It is always sown broad-cast upon five or ten feet ridges, let in with the nine-share, or harrowed under, and produces on a general average, 26 bushels per acre. The mean weight of the wheat crops produced upon the island, compared with that cultivated on the main land, is by the general consent of the millers, allowed to be from 1½ to 2 lb. per bushel the heaviest: it is certainly held in very high esteem for seed (particularly such as is produced upon the mild cedar-coloured loams) in every other part of the county.

The same observation formerly made with regard to the common-field husbandry, will apply in this place; for although two crops and a fallow is the ancient usage, still the breach or fallow field is commonly found occupied with a large proportion of green crops.

Notwithstanding that there is a full proportion of industry, liberality, and intelligence, to be met with among the occupiers of this island, it must seem strange to say, that they certainly do not manure generally so highly as their northern neighbours; or why are such quantities of manure suffered to be shipped from Ride and Cowes, in the manner it has been stated to the Surveyor to be the case, almost every week in the year? In the southern parts of the island, the occupations are in a manner excluded from all chance of procuring foreign manure; to suffer, therefore, the dung of Newport, or the other towns, to be transported from the island, appears as great a reproach to the tenantry of the country, as it is certainly a compliment to the vigilance of their northern neighbours.

Spring wheat has been sown in the island, but when put in so late as Candlemas, is always liable to mildew; an effect seldom experienced in the wheat crop under any other circumstances, and when the crop is sown in due season. A lamentable example of this practice occurred not many years since, of an ingenuous and speculative farmer sowing, *under the recommendation of high authority, about 60 acres of spring wheat*, the average produce of which was scarcely a sack of merchantable wheat per acre; and the man was consequently ruined.

General.—Throughout the whole of this county, the wheat is commonly rolled with a heavy roller in the spring of the year; it is also occasionally harrowed, particularly on the chalk rubbly and strong grey loams, both of which are extremely liable to bake and encrust upon the surface, in such a manner as to set the plant fast after heavy rains and a sudden drying wind in the spring of the year.

There are but few parts of the county where the early wheats are not fed by sheep, cows, or young cattle, in the month of March, and sometimes as late as new Lady-day. A great difference of opinion prevails among the farmers on this practice: the one condemns sheep-feeding on account of the wheat being pared too close; the other, from the destruction and havoc made among the plant by the cows and young cattle drawing it out of the ground. Both objections are unquestionably just and well grounded. The great mischief, however, which results from this practice (at least in the opinion of the Surveyor), is the impediment which the feeding occasions in the growth of the plant, and that at a time when its first effort is making to proceed to maturity; it seems altogether a direct inversion of Nature, and therefore ought always to be abstained from, whenever it can be omitted, without material loss or injury to the sheep stock of the farm.

The advantage supposed to arise from the tillowing of the wheat crop, is delusive in the highest degree; for in the first place, the plant is not equally pared down throughout the field, and those plants which may have escaped cropping, will on a certainty come to the sickle ten days or a fortnight earlier than those which may have been eaten close. This, however, is still not the worst we have yet to notice, for as in the tillowing of the plant, or throwing up succours, a number of different growths may always be observed, those which get the first start will most likely continue it; and hence, an extremely irregular growth is produced in the wheat crop, retarding its coming to perfection for eight or ten days; and when harvested, from the vast quantity of under corn necessarily produced, inferior both in quantity and in quality, to what such crop would have yielded had it not been stopped in its natural progress to perfection, and thence made to multiply an offspring which neither the constitution of the plant, or the soil in which it was growing, could bring to perfection.

A disease called pepper-corn, is sometimes found among the wheat in this county. It appears only partially to affect the ears of wheat, as a part of the same ear will be perfectly sound whilst the other part is filled with pepper-corn—a round imperfectly formed grain, of a blackish colour, exhibiting on its inside a yellowish kind of meal or powder, and which is known to be much propagated by sowing the same seed in succession for several years. Experiment has so far shewn, that the produce of an ear but slightly affected, would produce all pepper-corn the following year; as yet nothing has been discovered or suggested as the means of preserving wheat from a liability to this distemper; and it is therefore highly necessary, that the utmost caution should be used, not only in making choice of a clean, bright, well grown sample for seed, but to change such seed as often as a failure, either in quantity or quality, may point out a necessity for so doing.

The general expense of weeding the wheat crop through the county, may be stated at 6*d.* per acre. These crops are seldom hand-hoed, but when upon the wet heavy lands, black grass is likely to prevail to a considerable extent, a broad share is worked through the furrows, thus destroying that which would otherwise have escaped the reapers at harvest, before which time the seed of this grass is seldom ripe, or likely to be shedded.

The ordinary price of reaping, binding, shocking, or setting up good fair crops of wheat in this county, and without allowance of beer or any other advantage, *s.* 10*s.* per acre. Harvesting and securing in the stack or mow, taking the average of the seasons, first cost, and repair of corn staddles, thatching stacks, thatching and repairs of barns, included, about 8*s.* 6*d.* per acre. Thrashing and dressing wheat on a general average, 3*s.* 9*d.* per quarter through the county. Grinding and dressing wheat from 7½*d.* to 8*d.* per bushel.

Before we quit this article, it may not be amiss to relate a circumstance of curious moment, which occurred in this county not long since, on the culture of a single grain of wheat. On the 8th of August, 1804, a gentleman named Miller, took a plant of wheat which had been sown in the beginning of June, and divided it into eighteen parts; these he put into the ground, where they remained undisturbed until the latter end of September, when he again took them, and subdividing them into sixty-seven parts of roots, replanted them, and where they remained until the end of March: the plants were now a third time taken up, separated into 500 roots, and again replanted in his garden. Mr. Miller reaped this little harvest, and found that by this process a single grain had been made to produce 21,109 ears, containing 570,000 grains, measuring three pecks and three quarters, and weighing 57 lb.

SECT. II.—RYE.

The part of the county where rye is principally cultivated for a crop, is upon some of the light sands in the valley of the Avon, and in the parish of Christ Church, bordering upon the New Forest. In this light, however, its culture is not sufficient to demand a more particular notice. In most other parts of th county (the Isle of Wight excepted), rye forms a important article for early spring food, and when it i afterwards suffered to remain for a crop (but whic rarely happens), its produce is about eighteen bushel per acre. The quantity of seed sown, whether fo spring food only or with a view to a following crop seldom exceeds six pecks per acre.

* * *

SECT. III.—BARLEY.

The common modes of cultivating barley in th county are two, one after turnips, the other up a wheat stubble which has been winter-fallowe When the turnips have been necessarily kept f late use, many objections are stated against t former practice, particularly after the turnips at a la period of the season have been fed off in wet weathe and that an opportunity has either not occurred, been taken to plough such poached land before it g dry, and baked hard again. Under these circum stances the utmost exertions are often made, though i vain, to save the barley season; the alternative in suc cases is reduced to summer tares, or early turnips, bo fed off, and succeeded by a crop of wheat.

One material error, however, very frequently lea to this disappointment, and that is, in the deep fu earth the turnip land receives in the first instance: th rising in a close, tough, livery slive, and soon af followed by a dry spell of weather, the patience of Jo

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and the labour of Hercules, would not be sufficient to reduce the tough clingy loams in any reasonable time, to such a tilth as is proper for the cultivation of barley: would it not therefore on such occasions, be adviseable to let the first earth be made as shallow as possible, provided the ground is ploughed clean, to operate upon the surface thus loosened with the roll and harrows; and depend upon opening and pulverizing the undersoil with that most valuable of all implements for such a purpose, Cook's iron-beam scarifier?

This machine working crossways to the direction in which the land may have been ploughed, would bear equally on the tops, the sides, and the furrows of the ridges, and which from the moist tender state the subsoil is then in, a tilth would be effected in a manner no less cheap than sudden and extraordinary, to every one unacquainted with the properties of that valuable instrument. At the will of the farmer a stirring earth might be added to the turnip land thus pulverized, and the barley harrowed in. The better mode, however, in the judgment of the Surveyor, would be, to sow the barley upon the scarified land, and to plough it under into proper sized lands or ridges, not carrying less than five furrows to the yard.

The best tilth, however, which the season, the time, and the implements at present in common use through the county, the farmer can effect, is made, and the barley is sown broad-cast about four bushels to the acre, dragged and harrowed in, and sometimes, but not often, let in with the nine-share plough, yielding an average produce (deduced from a great number of examples collected on the Survey) of 35 bushels, weighing about 50 lb. each per acre.

The wheat stubble barley is generally that which is cultivated upon stronger land, and where it would have been utterly impossible to have obtained a proper tilth without a previous winter-fallow; but by which means a far more appropriate tilth is procured, than, under the most favourable circumstances, could possibly be obtained from such land, unless previously opened to the operation of the winter frosts. The absence, however, of that portion of feeding manure applied for the turnip crop, and afterwards increased by the consumption of such crops upon the ground, is always evinced in the growing vigour of the wheat stubble barley, although sown upon a better tilth, and generally at a more favourable season, and with the addition of at least half a bushel of seed per acre: this will not, however, on a general statement through the county, reach the turnip barley produce by four and an half or five bushels per acre. This barley is also, from the nature of the land, less round in the grain, thicker skinned, and of an inferior quality by at least 2 lb. per bushel.

Bere, or winter barley, is sometimes sown upon loose hollow-bottomed land after potatoes, under which circumstance it is found to answer uncommonly well. One of its principal advantages, besides that of making very good hog food, is that of bearing to be close fed down once or twice, and to the middle of May, with ewes and lambs, and afterwards, like rye, to stand over for a crop. The seed required is about four bushels, sown broad-cast and harrowed in, and yielding an average produce of 30 bushels, weighing 45 lb. each per acre.

The naked or Siberian barley, was also observed upon the Survey as being cultivated upon a winter-fallow after wheat: it was sown broad-cast about three bushels per acre, dragged and harrowed under, and afforded a produce of 28 bushels of 60lb. each per acre. This barley has been malted, and the Surveyor has drank some very good beer produced from it. The principal point found necessary to guard against in preparing this malt for the mash, is to take care that it is not too much broken by grinding; for in that case the whole mass runs into a pulp or pudding, when it becomes extremely difficult, if not altogether impossible, to draw the wort from it. The Siberian barley malt should be therefore barely cracked, and not ground, and which may easily be done by raising the running stone, or properly adjusting the mill, if steel; when, as the extract is certainly equal in quality with the wort produced from common barley, so will its quantity exceed it in the proportion of six to five, that being the relative weight of either barley.

After the seeds are sown upon the barley, or in cases where no seeds are sown, the last tillage operation is rolling, and which is commonly done with a light roller drawn by one, or at most two horses, and thus the ground is left smooth for mowing at harvest.

As there are commonly a number of thistles and other weeds in the barley, particularly that which follows a crop of wheat, the common expense of destroying them, with other trumpery, is estimated at 8*d.* per acre.

The ordinary expense of mowing by contract through the county, and consequently without any allowance of beer or victuals, may be taken as hereafter stated per acre. The awning iron is sometimes, though rarely, made use of in this county. The malting expenses are, duty 34*s.* 8*d.*; making and drying 5*s.* 3*d.*, and grinding 1*s.* 4*d.* per quarter. The awns or chaff is usually mixed with wheat hulls, and given to horses with their ordinary allowance of corn, or they are all mixed up together, and so given with cut straw or hay. The common price of grinding barley is 4d. per bushel; but little of this grain is used as bread corn by the peasantry or other inhabitants of the county.

SECT. IV.—OATS.

A VERY general crop, the tillage for which is simple, and easily performed. The manner in which the culture of this crop is pursued in this county, is after two preceding white straw crops, in direct succession to a wheat crop on the strong clay loams, and upon the flag earth, as before noticed.

From the state of exhaustion to which the land will necessarily be reduced by two preceding white straw crops, the produce from six or seven bushels of seed very often does not exceed thirty bushels per acre. These are sown broad-cast, and whenever possible, upon a stale furrow, from the first to the 15th March; sometimes let in with the nine-share, but more generally dragged and harrowed in.

Little difference is observed in their culture, whether they are the third crop, as in the above instance, or that they immediately succeed to a crop of wheat. The same quantity of oats are sown upon the inverted wheat stubbles, at the season before noticed, but commonly with an increased produce of six or eight bushels per acre.

When the old lay ground is broken up with the intention of being sown with oats, this is done as early as possible in the preceding winter, and being then judiciously ploughed to a good full pitch, the action of the frost upon the fresh surface is generally sufficient to allow an ample portion of mould to be procured for covering the seed oats, and of a neat tilth being made as soon as the land becomes sufficiently dry to be worked after Candlemas: upon these occasions little short of seven bushels are sown, and the average deduced from this culture, from several different statements procured upon the Survey, equals a produce of 38 bushels per acre. Thus much appears necessary to notice, on the culture of the common black or white oat through the county; the average weight of which, derived from the same data, equals 36 lb. the struck Winchester bushel.

With regard to the Tartarian oat, something farther is to be observed. This grain, however justly it was condemned on our first knowledge of it, has from early and thick sowing been found most wonderfully to improve within a period of twenty-five or thirty years: by these means it has in a few instances been brought to a superior quality of the average above stated, and with an excess in quantity to the amount of six or eight bushels per acre. That a progressive improvement is still by these means to be continued on this species of oat, is clear in the opinion of many gentlemen who have attended to the progress they have hitherto made.

An oat which Mr. Mines, of Old Alresford, states to weigh 46 lb. the struck Winchester bushel, is now cultivating by that gentleman, who has promised to communicate to the Honourable Board of Agriculture, whatever may be worthy of notice in the future culture of this grain.

Oats in this county are generally cultivated for the food of horses, there being but few shelled or manufactured into meal. The straw, as well as that of barley, is of considerable value, particularly when well saved, and that young seeds have grown well amongst them for wintering cattle. The barley straw is undoubtedly the softer of the two for the mouths of cattle, but the oat straw, with all its extraordinary harshness, is in the judgment of many farmers thought to possess the most nutritious qualities.

The mowing, gathering, and expense of harvesting this crop, may be placed within what has been already stated for barley: the thrashing and dressing will also come to about one-third less per quarter.

Upon the strong lands not seeded with clover or other grasses, the oat stubble is either winter-fallowed for wheat, or carries a crop of winter tares, which are folded off in due season for the same purpose.

The mild gravelly loams sustaining this crop are seeded down with clean clover or other grass seeds, the former on a course of four years, the latter that of five; upon the still more light sand and gravelly lands, when clover and other grass seeds are not cultivated with the oats, the oat stubble is either winter-fallowed for turnips, or is occupied with rye and winter tares in preparation for the same crop.

SECT. V.—PEASE.

DIFFERENT sorts are very generally cultivated, the tillage of which is simple, and excepting the hoeing, by no means expensive: that bestowed for the partridge or Marlborough grey pea, is chiefly confined to the flag earth, with subsequent harrowing to cover the seed; or the pease are sown upon once ploughing a wheat, barley, or oat stubble, generally broad-cast: the partridge or common grey pea, four bushels; the Marlborough grey three bushels and a half per acre. These crops are, or at least should be, always put in before the middle of March, and when either of them do hit, they prove extremely valuable, not only from the quantity of hog food they afford, but from their meliorating effect upon the soil, which is usually, and as before noticed, cleansed and manured for wheat. So truly sensible are the Irish farmers of this fact, that when a field in that country will scarcely return the seed of oats that may have been used upon it, grey pease are sown about St. Patrick's day upon the first earth, and that crop hitting, is the certain forerunner of a good crop of wheat, and without manure. On the contrary, when the pease do not take, there is nothing tends more to the fouling of the soil, than the great burthen of rubbish they uniformly give rise to. But this crop is sometimes most abundant in straw or haulm, with little or no fruit; here the meliorating effect of the covering during the summer sun, is not abated, although its immediate value to the farmer is so small as to induce him to plough such crops under for manure, a circumstance that occurred in too many places in the course of the last summer, in order to subdue the trumpery, and restore to the soil a part of which it may have been deprived in sustaining such a burthen. The mode which the Surveyor would suggest in these cases, would be that of ploughing the whole under at a good fair pitch, and to brush in rape or turnip seed, or perhaps both, upon the fresh mould, and which should be penned off in time for wheat to be sown before the middle of November. A main object in sowing green crops where the pea crop may have missed either in haulm or fruit, is that by lightly harrowing, and afterwards compressing the soil with a heavy roller, it becomes so compact as to be able to retain that portion of moisture necessary to promote the dissolution of the pea vine in the course of the succeeding summer months, and before it was again turned to the surface in preparation for a crop of wheat. Under this very uncertain view of the culture of pease, it is perhaps risking too much to state any proportion that should be regarded as a fair average produce. In a period of forty years experience, the Surveyor has seen many crops of pease entitled to the destiny which several fields experienced in the course of the last summer; he has also witnessed in that time, ascending from a crop of no other value than to be ploughed under for manure, various gradations of the common grey pea produce, to a last full paid, or 84 bushels per acre.

The early Charlton, other white and blue pease, and the black eyed pearl pea, are cultivated with various results, on the light tender loams in the southern parts of the county, and Isle of Wight. They are sometimes drilled eighteen inches a-part, though the most common mode is to sow them broad-cast on the flag earth, and harrow them in. As these pease are all found to favour a warm and dry situation, their sowing often commences before Christmas, and is continued through the winter, at such times as no other work is particularly required to be done. The early pease are mostly sown before the end of January, requiring an average quantity of seed from three and a half to four bushels per acre. These crops are always hoed and kept as clean as possible, and until it may no longer be safe or convenient to disturb them, or that they may be so strong as to overpower any rubbish that might get up among them: they are always harvested in time for the land to be prepared for late turnips, or to be sown with wheat. The straw or haulm of these crops, when well saved, makes very good rack meat for horses, and upon which they are generally fed till Candlemas, or till the spring work so far presses as to require them to be racked up with hay. Although it is extremely difficult to state, with the precision so carefully aimed at through the whole of this Report, what may be the nearest average produce of these crops, still the most intelligent cultivators in the county will generally allow, that a statement would not be very wide of the mark, if it were fixed at eighteen bushels to the acre.

A considerable mystery still seems to hang over certain properties of these pease, with regard to their boiling well for soup or porridge; good boilers being sometimes sown upon fields which have never been known to refuse yielding a produce possessing a similar quality, but that effect afterwards ceasing, and a hard indissoluble pea has been produced, that continued for several successive periods; whilst on the other hand, land that had never been known, or even suspected of being able to communicate a boiling quality to its pease, would unexpectedly give to the produce of an hard, and almost impenetrable pea, all the properties of being excellent boilers. Through all the cedar-coloured sand and gravelly loams in Devonshire, good boilers are stated to be uniformly, and in continued succession produced. The same kind of soil, and in every respect under similar circumstances, in the Isle of Wight, will only occasionally, and by accident as it were, produce good boiling pease. Some opinions seem to refer this effect to a peculiarity in the seasons; but this cannot stand against a well known truth, that good boilers are produced every season. Others conceive, that a cause operating to an effect either way, may be connected with the time and manner of putting in the seed, as also of its being old or new pease that may have been used for the purpose. At all events, in a country like this, where such vast demands are annually made for a supply of this article, as well for our maritime as domestic use, would it not be deserving a course of experiments on a well adapted soil, or by the offer of a suitable premium, make it worth the attention of farmers eligibly situated for the purpose, to enter upon such a series of trials as may tend to put the question beyond future doubt; and thus establish the certainty and best mode of cultivating good boiling pease?

SECT. VI.—BEANS,

Are by no means so generally cultivated in this county as the nature of the brown clay loams would give us reason to expect. In the woodland parts of the county, in addition to their being sometimes sown broadcast upon the flag earth, it is no uncommon practice for a wheat-stubble to be turned under as early as possible in the winter, and beans dibbled in upon the stale furrow, in rows set out with a line, and in various directions lengthwise and across the lands and ridges. These rows are about 13 inches a-part, and require three bushels and an half of the common horse-bean, and three of the Kidwell, to plant an acre. They are

hand-hoed, at an expense of 6s. per
and sometimes finished by a moulding
breasted plough; average produce 30
The bean arish, as before noticed,
and carried forward for a second

[illegible]

ue wheat in the first instance, in
fallow, the ground is dunged during
and the manure turned under the flag upon
which the beans are planted, in rows about 15 inches apart. Seed required of the small Kidwell two and an half, of the larger horse-bean three bushels per acre. These are commonly twice hand-hoed, at the average expense of 5s. the first, and 4s. 6d. the second time per acre, and almost always finished with the double mould-board plough; average produce 28 bushels per acre.

In other parts of the county the wheat-stubble is also winter-fallowed, and made as clean as possible, by the middle of February, when the common horse-bean is dibbled in like manner, but generally lengthwise upon the ridges at 15 inches a-part, using the same quantity of seed for the same distance above-mentioned. The intervals here are first horse-hoed, then once or twice hand-hoed, at an expense of 6s. the first time, and 4s. afterwards, and finally finished by a moulding with the double-breasted polugh; average produce 36 bushels per acre.

The small tick-bean is sometimes, but by no means so generally cultivated as the common horse-bean. This bean is seldom put in rows nearer than 18 inches; seed required about two bushels; produce about 30.
culture, and the subsequent appropriation of the land,

land, may be very well understood from what has been already stated.

When beans are sown broad-cast, which is sometimes done on a stale furrow after wheat, barley, or oats, the quantity of seed used of the large horse-bean, five; the Kidwell four and an half; and the small tick-bean four bushels per acre. This seed is always put in as deep as possible with the drag and harrows, and the furrows are commonly closed a good full pitch with the double mould-board plough. They are hand-hoed and examined from time to time, with a view of keeping down thistles and other weeds. Operations under this mode of culture, are often attended with heavy and ineffectual expense, and rarely exceed a produce of 25 bushels per acre.

The greater part of Haling Island appears well calculated for the culture of beans, but hitherto this crop does not appear to have been an object of much concern with the majority of its inhabitants. The bean crop is generally cut down with a reap-hook, though in one instance it was observed drawing up by the roots, and commonly bound into small sheaves with wheat-straw, pea-haulm, or old hop-bines.

SECT. VII.—TARES.

A MOST valuable green crop, and generally cultivated to be used in that state. In the preceding statements so much has been necessarily said on this subject, as to render a very minute discussion in this place altogether useless. It appears to be generally sown at different seasons; the first immediately after harvest on a wheat or other stubble, fresh turned under; the second, and those designed for late use, are sown in the spring and early part of summer, upon ground previously winter-fallowed for the purpose.

These crops are usually sown broad-cast, and harrowed in; the winter tares requiring seven, and the summer tares about six pecks per acre. The former are often fed off in time for the land to be sown with early turnips, succeeded with wheat; the latter are also folded off in the course of the summer, in the place of beans, pease, or clover, in preparation for wheat also. When rye and winter tares, winter or summer tares only, have been mown for soiling horses, or otherwise consumed than where they grew, such parts of the tare land always receives the ordinary dressing of dung or sheep-folding for the ensuing crop of wheat.

It should be an object with most farmers to reserve a small portion of their winter and summer tares for seed; the uncertainty of procuring tares for this purpose, with the very high price they occasionally bear, renders this precaution absolutely necessary; the most serious injury often accrues to the stock, and succeeding crops of the occupation, through the want of this important provision in the spring and early part of summer, when this measure is adopted (and which is certainly becoming far more general than formerly). It being the most prime and promising part of the tare crop that is usually reserved for seed, their average produce may be stated, winter tares at 22, summer tares 18 bushels per acre.

This plant in a few cases has been mown and made into hay; the time of cutting is generally chosen when the lower pods are completely formed and filled, but not ripe, and that the upper part of the vine is in full blossom. The hay is made by repeatedly turning the swarth (or rather forks, full or small heaps, into which the tares are formed in cutting). Tares, when made into hay, are found to have a nutritious, though rather heating quality, and are therefore lowered in these respects by their being given with inferior hay; a measure by no means to be recommended, as the horses will uniformly reject the hay after picking out the tares. The better way therefore would certainly be, to cut both tares and hay as short as possible in a common engine; and these being well mixed together, there is little doubt but they would be eaten up much cleaner, provided the food was administered in small quantities, and that the last sieveful was consumed before the following one was put into the manger.

SECT. VIII.—BUCK-WHEAT.

WITH all the agricultural knowledge we pretend to have acquired and resort to in our general practice, we certainly are but little acquainted with the true value of this grain, either for human food, or in the early stage of fattening swine. In Pennsylvania, and through all the middle and eastern States of North America, buck-wheat is sown upon once ploughing the wheat or rye-stubbles immediately after harvest, and which is there generally in by the first of August. The seed is sown broad-cast on the fresh ploughed ground, and harrowed in about two bushels to the acre. In those climates this crop is always reckoned to require eleven weeks between bushel and bushel. The month of October seldom passes without new buck-wheat meal being exhibited in all the large market towns in that country, and which is uniformly cultivated in the manner just mentioned upon land that has afforded the preceding harvest either a crop of wheat or rye.

Upon all the light and sandy loams in the provinces of Utrecht, Guelderland, Overyssel, East and West Friezland, and generally through the Lower Circle of Westphalia and Ducth Brabant, buck-wheat is universally cultivated upon winter fallows, and sown as early as possible in the month of May. Here it is more languid in its growth, though it grows to a much greater height and luxuriance than in the United States of North America; for whereas in America it seldom exceeds 20 inches or two feet in height; in the province of Bentham and Guelderland it has been observed by the Surveyor as growing with regular luxuriance to the height of three feet and upwards. From the correspondence in the thickness of the plant upon the ground, he conceives that nearly the same quantity of seed is used in Holland as America; but the use which is made of the grain in the former country is far more important and extensive, it being regarded as a luxury in one country, and an article for food of the very first necessity in the other.

In Holland and Germany it forms a considerable part of the bread corn of the boors and peasantry; and the black husks of bran being after grinding merely separated from the meal with a coarse sieve, it is then used for pancakes made up with butter-milk, and in which there are thin slices of bacon fried, forming together a strong, wholesome, and palatable food, affording an agreeable change to the coarse rye-bread which otherwise seems to form the great staff of life in those countries.

In the United States of America much more pains are taken with the buck-wheat meal, which after grinding is bolted and dressed into first and second meal; the bran husks or offal is made use of for the pigs. The flour of either quality is made up over night with yeast and water; this being kept warm through the night near the wood embers, by morning it has risen to a light and frothy consistence, when it is baked upon what is there called a griddle, in thin cakes resembling the London crumpets, and which are generally buttered and sent up for breakfast, or warmed over again for tea in the afternoon. This griddle consists of a circular cast-iron plate about half an inch thick, and, according to the size of the family, from six to nine inches in diameter: it is suspended upon a triangular frame over the fire, or placed upon a trivet over hot coals; a small linen bag or cushion filled with hog's-lard is lightly rubbed over the hot plate or griddle, between the baking of each cake and the spreading of the buck-wheat batter. These cakes, when properly prepared and dressed, are far more light and spongy than any other of so simple a preparation in the whole art of cookery, and are regarded by the first families in those countries as one of the greatest luxuries with which they can treat their friends during the continuance of winter; not from any want of what in other respects may be considered as European luxuries, there being as great a profusion of such dainties in that country, as there is liberality in its inhabitants for presenting them to strangers, and otherwise exercising the kindest offices of respect and hospitality.

The little buck-wheat sown in this county is chiefly by gentlemen, in small spots within their woods and plantations, for their pheasants. A few instances occurred upon the Survey, of buck-wheat being sown with a view of ploughing it under for manure; but of its more valuable use for bread corn, or in the early stage of fattening swine, or other animals, little seems known, or at least practised, in any part of these united kingdoms, the colonies of Nova Scotia and Canada perhaps excepted.

SECT. IX.—TURNIPS.

THIS valuable plant seems to be daily gaining ground among the most respectable farmers and best agricultural characters in the county. Although there may be, and annually is, a large extent of ground cultivated with this plant, upon what, strictly speaking, is not good turnip land, because it will seldom admit the turnips being fed off in due season without injury to the stock or land, still the practice upon good and sufficient grounds is so far increasing, as greatly to diminish one of the most formidable evils agriculture can possibly be liable to, that of not having a sufficiency of food to carry the necessary stock of the occupation, without incalculable loss and difficulty, through the winter.

Experience has gradually taught the most judicious management of the different sorts of turnips at present known in this county: this has greatly contributed to lessen the solicitude and risk that must ever accompany that interregnum which must necessarily occur in every country between the end of the old year's supply and the coming in of the new. It may also be observed, that however averse the ground may seem to a second sowing of the same sort of turnips, where th first have missed, still a change of seed, bearing a variety in the species, will be less liable to fail, provide the land is in such a condition as ought to warrant i bearing a crop of turnips at all.

The turnips produced upon the stronger loams, n possessing so good a feeding quality as those grow upon lighter and drier soils, will not be sufficient discourage their culture, until we become acquaint with a better substitute for the purpose they are d signed to answer. The profits accruing upon the stoc whilst they are feeding off

The early Tankard Turnip—Upon such land, e clusive of the benefit which follows from their teath is amply sufficient not only to justify, but to reco mend the practice, in every other part of Englan This turnip, which would neither stand the comm winters of this climate upon any soil, or yield nut ment for weight with any other of the species, prov an admirable preparation for wheat upon all lan whether light or heavy, provided they are fed off time for wheat to be sown by the middle of Novembe

The Norfolk White Loaf, the Green and Purp Rounds—Are those which form the grand supply f carrying the stock through the winter, and which pr vision may be again most advantageously continue through the trying months of March, April, and pe haps half May, by recourse to the

Ruta Baga, or Swedish Turnip—And the still mor recently introduced Hungarian turnip. The excellence of the ruta baga for standing the winter, and forming the most nutritious supply of green food ever known in this country, is now established beyond all reach of question. The very bottoms of these turnips, even after their seed is perfected, if stowed away when dry, and in an equally dry place, will still retain such a degree of consistence, firmness, and juice, as to render them the very best of green food for hogs, until the harvest comes in. How far the

Kohl Rabi—Will be found to equal in excellence the ruta baga, is a point which one or two years will necessarily decide; but so far as the specimen exhibited in the course of the Survey, and to this late period, will enable the Surveyor to judge, the most flattering expectations may reasonably be entertained from it; and consequently that it will hereafter rank in the first class of legumens, as also for the purpose of feeding cattle.

In preparing for the tankard, and other common turnips, the usual practice is, to give the first earth about Candlemas; upon this earth muckle and sheepfold, that is, littering the sheep-fold with long dung from the straw-yard, and penning upon it about half the usual quantity of sheep per acre until Midsummer, or dung, or mixing, previous to the last earth, and sow the manured land thus fresh ploughed in every day, between the 10th and 25th of June. The same management is pursued in the culture of turnips designed for late or winter use, with this difference only in point of season, that the later turnips may be kept sowing through all July.

It is customary for both early and late turnips to be hoed once, and sometimes twice, at 6*s.* the first time, and 4*s.* ths second, per acre. These turnips are sometimes

times harrowed to facilitate the operations of hoeing; though this is never done with a view of loosening the plants and occasioning them to apple. The implement with which this very necessary operation is performed in the county of Norfolk, and in those seasons when the autumnal winds have not been thought sufficient to give the necessary freedom to the turnip roots, has already been described.

Among some promising crops of ruta baga, broadcast, but chiefly on three-feet ridges, drilled two rows upon a ridge, those of Mr. Fitzherbert, of Stubbington-lodge, in the Island of Portsea, rank the highest in general excellence. The ground for these turnips was prepared by a winter-fallow, dunged, the ridges formed upon the manure at 30 inches a-part, and in this case drilled with one row only upon the top of each ridge, about the middle of May. Nearly a third part of the same field, under precisely the same circumstances as to tillage and manure, was not drilled until the 10th of June, and here the crop did not appear so promising by 40*s*. per acre. From the middle to the end of May, but even earlier if possible, these turnips should always be sown; they are less subject to be injured by the fly, and in addition to other excellencies, that of being less liable to receive a fatal check by removal, must not be omitted. Upon examining the rows upon the ridges after the first hoeing, a sufficient number of healthy plants may always be obtained to make good such deficiencies as may casually have occurred; and thus a more equal and regular crop may be cultivated at a very moderate proportion of expense indeed.

In cultivating the Swede broad-cast, the bottom being much less prone to occupy a large space, and their tops being generally far less luxuriant than many of the common sort, it has been found most advantageous in hoeing them, to leave them at a closer distance, say six inches a-part. These are generally looked over a second time, chiefly with a view of singling out the double and too closely set plants; and as the tops of these turnips very generally fade after the root has attained its full growth, it is then curious to observe the regular and complete pavement of turnips that remain —an object which should always be closely kept in view in conducting this branch of the broad-cast turnip husbandry. Previous to the top of these, as well as that of most other turnips, falling off in the autumn of the year, it assumes a light bluish colour, and corresponds with that appearance which in Norfolk, and in other parts of the kingdom, is called mildew, and which all early sown turnips that have grown luxuriantly to perfection, and afterwards become exposed to a dry spell of weather, are most liable to be affected with. These symptoms are always regarded as a certain forerunner to the turnips loosing their tops, and with a consequent injury not only to the crop, but to the ground on which it grew, it being always observed, that little or no exhaustion is occasioned to the ground by the production of the bulb, but when the bottom puts forth its second, or seed top, it is then only that the ground begins to suffer any material exhaustion, a gradual increase of which goes on upon all lands until the seed of the turnips is perfected. It would, therefore, be desirable (though in the case of the Swede, and perhaps some others, difficult to accomplish), that all turnips liable to drop their first tops in the autumn, should be cultivated for early use, and consumed before Christmas.

In almost every instance where the kohl rabi has presented to view within the limits of this Survey, the plants have been raised in a seed-bed, and in some cases with little care, even upon a headland in the same field in which they were afterwards transplanted. The ridges upon which they have been observed growing, are those of 30 inches, or three feet from ridge to ridge, upon the tops of which, the kohl rabi has been set in single rows, and at the average distance of about 15 inches a-part. In one instance only, the kohl rabi was sown broad-cast with other turnips; the soil of a light and sandy nature; and here candour must allow, that a most astonishing difference was observable in favour of the kohl rabi, every plant of which was growing strong and luxuriant; whilst the common turnip, sown at the same time, possessed scarcely vigour sufficient to resist the ordinary depredations of the fly.

So extremely sanguine (and perhaps with good reason) are some gentlemen, on the superior excellence of this plant, that there is scarcely a circumstance unfavourable in the culture of turnips in general, that this plant is not stated to be provided with the means of controuling. (Imprimis) it is stated to flourish and come to a very high perfection, that is, the average weight of the crop, topped and tailed, *or the mere bulb only*, *7 lb. per plant;* and this upon all sorts of land, whether stiff or tender, mild or sour, wet or dry, and even without, though unquestionably better with manure. It is in a slight degree only, if at all subject to injury from the fly, and will flourish equally in a dry as in a moist season. The crown of the plant constantly expanding, throws the former leaves on the sides of the bulb, when after performing their appointed functions, they fall regularly off, and as no exhaustion of the root, or of the ground in which it is planted, seems necessary to support a large and temporary top, the energies of the plant seems chiefly confined to the enlargement of the bottom, which is round, smooth, and handsome, of a green or purple colour, formed above the surface, and sometimes sustained by a bunch of laterals, but more generally with a clean, thin, tap-root. The substance of the bulb is equally firm with the pith of a cabbage stalk, or the bottom of the Swede, and so far as a judgment can be formed by the human palate, it possesses a larger supply of the saccharine principle than any plant of the turnip species we are at present acquainted with.

The seeds of this plant should not be sown later than the middle of April, transplanted afterwards upon two-furrow ridges, dunged in the ordinary way for turnips before the middle of July, set out in single rows upon the ridges, and at the distance on the line of the ridge of about 15 inches a-part. The labour and expense attendant in transplanting, is amply compensated by the certainty of a crop, and the little hand-dressing they will afterwards require, beyond what may very readily be performed with the horse-hoe. Perhaps from the length of time the Swede is growing, and the slow progress it makes in its early stage, this management will, upon the long run, be found the most preferable even for that crop, and to the mode now most generally practised, of drilling two rows upon a three-feet ridge. In both cases time and experience will prove the best guide; our good fortune is highly manifested in the present day, in becoming acquainted with these valuable plants; their own excellence will prove their best passport to futurity, when there is no doubt but their culture will be carried to the highest perfection which the species are capable of being brought to, upon the different soils, and under the influence of the climate of this country.

SECT. X.—COLESEED OR RAPES,

By which latter name this plant is most generally known in this county. This has been already stated as a plant occasionally cultivated for sheep food only, and under circumstances where there would have been but little chance of obtaining a crop of turnips. It is commonly sown upon the first earth from a former stubble, unless upon the thin hazel and chalk rubbles: it is admitted as a part of the seed with turnips, to afford some resource for green food, should the turnips fail. Coleseed may, and is sown, from the middle of May until the end of July, always broad-cast, from one to four quarts per acre, and harrowed in. It is folded off with sheep the latter end of summer, and the ground either sown with wheat, or from the dressing procured by a second feeding of the sprouts in the months of February, March, and early in April, the land is sown with spring corn, or again carried forward for early turnips, to be fed off and succeeded by wheat. Under all these views, coleseed is sown upon the thin deteriorated lands in the higher parts of the county: it is admitted to be a hardy useful plant for these purposes. There is, however, but little land in the county, at least under present cultivation, that would justify the culture of coleseed upon it with a view to a crop.

SECT. XI.—CABBAGES,

ARE but seldom cultivated in this county for the purpose of feeding cattle. As a vegetable for supplying the large towns, and the shipping resorting to the southern coasts of this county, they are perhaps no where more generally attended to than in almost every situation where there is a suitable demand for them, and that a quantity of town-dung can be conveniently procured. Their culture in the southern parts of the county is chiefly with a view to a supply for the hospitals, the Portsmouth and Gosport markets, and the vast quantity of shipping constantly at rendezvous between St. Helen's and the Needles. In the more northern parts of the country they are cultivated chiefly for kitchen use, and for a supply to the larger towns.

A few small patches of the *drumhead*, or *Aberdeen sort*, were noticed on the Survey, as evidently designed for feeding cattle: the irregular, uneven, and generally indifferent appearance which they made, bespoke a defect either in their culture, or that the attempt was radically wrong. On every case the Surveyor had an opportunity of extending his enquiries on this subject, no intermediate transplanting had taken place, or necessary training in the nursery between the seed-bed and the field; and which, as stated by the Surveyor in his former Report on this subject (vide Essex Survey, page 150), will in a great measure account for the failure of the *field* cabbage crop, particularly after a dry summer, be the expense of manure and previous tillage what it may.

Thousand Leaved.—Some specimens of this plant were observed growing very luxuriantly on a naturally poor soil, but which had been manured in the ordinary way for turnips. They were sown upon the headland, and planted out at the same time, and in like manner with the kohl rabi; but unless this plant can be cultivated to a greater advantage as a substitute for rape or cole-seed, and that in like manner it will bear cropping repeatedly by sheep, and again set forth fresh sprouts, leaves, and succours, it does not come within the view of the Surveyor, as a plant likely to prove any great acquisition to the agriculture of this county. The labour of repeatedly stripping the plant by hand, must operate as a powerful objection to its culture on a large scale.

Neither Carrots, *Parsnips*, or *Beets*, are cultivated otherwise than in gardens, for kitchen use. The islands of Jersey and Guernsey, appurtenant to this county, would furnish some interesting details on the culture of parsnips; but this information must be suspended until that happy epoch once more returns to bless the inhabitants of this empire with tranquillity and peace.

SECT. XII.—POTATOES.

THIS important root is judiciously attended to in a greater or less degree throughout the county, and for human food almost exclusively. The general practice is to cultivate them in rows from eighteen to twenty-seven inches a-part. Grass potatoes, or those cultivated upon old lay ground in beds, and in the manner practised in Ireland, are by no means uncommon.

Potatoes are planted under various circumstances of preparation as to preceding crops: the practice, however, most generally pursued, is to winter-fallow a former stubble, and after it is got as clean as the means, the season, or the activity of the occupier will admit of, the whole surface to be planted receives a full dressing of manure, chiefly consisting of town, farm-yard, and stable-dung. This being spread in such proportions over the field as the particular circumstances of its different parts may require, a turnwrest, or one-way furrow plough describes the first furrow on the side of the field upon which the planting is intended to be began. This done, the dung of the two or three next slices is raked into the furrow, and the potatoe sets previously prepared are placed upon it at the common distance of from ten inches to a foot a-part. The plough is drawn by two horses at length, walking close along the last ploughed furrow, but on the unploughed ground: at the end of the work it is alternately cast so much from the line of draught towards the last ploughed furrow, as to admit a clean and even slice to be taken up, and whelmed upon the dung and potatoe sets previously deposited in the furrow. Two or three slices are thus ploughed without sets, and thus, at the will of the cultivator the field is planted every second, third, or fourth furrow, and consequently in rows with corresponding intervals.

The early potatoes are usually planted every other furrow, the sets seldom placed wider than six inches a-part, and with a far less portion of manure than is commonly deemed necessary for sustaining the later and more important crops.

When the young plants of either sort sufficiently mark the lines, the intervals are horse-hoed, and the rows hand-hoed and wed. These operations performed, and the potatoes two or three inches high, the hoe before used receives a double breast of iron, and with which the early potatoes are first and last moulded. This operation is repeated upon the late potatoes by a farther expansion of the iron breast, as also after both operations, with looking over, drawing, or cutting out such weeds as would be likely to prove hurtful to the crop, and righting such plants as might be liable to injury from clods falling upon them, completes in both cases the moulding and tillage culture of these crops. A stronger double-breasted plough is employed for taking up the potatoes. This is used without a coulter, and after the potatoe vines are drawn, the plough is held in the middle of the row, and which with one man and a good strong pair of horses, will employ thirty women and children to clear after it: with this force and the necessary convenience of cart-horses, and other attendants for carting, potatoes may be ploughed up, gathered, and secured in a cellar, under a barn floor, or other convenient building prepared to receive them, from eighteen to twenty tons each day. The produce of the early potatoes may be taken from seven to eight tons; of the later sort, fit for the table, but rejecting the ox, or rather ignoble and all the coarser kinds, from eleven to twelve tons per acre. The expense of cultivating the late crops, and from which a proportionate allowance must be made for those that are planted early, may be stated as follows:

Upon lands usually appropriated to this use in those parts of the country as are convenient for obtaining manure and transporting the produce to market.

The Crop Dr.

To Rent,	£.2	0	0
Taxes,	0	12	0
Tithe,	0	10	0
Two ploughings in preparation, at 12*s*. each earth,	1	4	0
Harrowing and cleansing,	0	10	0
First cost, carriage, and spreading of ten waggon loads of dung, at 20*s*. each, ..	10	0	0
Eight cwt. of seed, at 4*s*. per cwt.	1	12	0
Cutting sets,	0	4	0
Last ploughing or seed earth,	0	8	0
Three women at 8*d*. each, for droppng sets,	0	2	0
Bush-harrowing,	0	1	6
Horse-hoeing,	0	2	6
Hand-hoeing,	0	4	0
Twice moulding or hilling up,	0	5	0
Hand-hoeing, weeding, and righting the plants,	0	2	6
Gathering and securing in stores,	3	5	0
Total expenses per acre,	£.21	2	6

Per Contra Cr.

By 11½ tons of merchantable potatoes (averaging 161 lb. for each square perch), worth at the stores upon an average, 60 lb. per ton, equals	£.34	10	0
By value of potatoe tops for manure,	1	0	0
Total value of crop,	£.35	10	0

From

SECT. XIV.—RAY-GRASS AND TREFOIL.

The culture of ray-grass and trefoil is generally the same: they commonly grow in various proportions, are mown and are thrashed together; with these various mixtures, from a bushel and an half to two bushels are sown the common broad, and the white Dutch clover, 4 lb. of the former and 3 lb. of the latter per acre, and generally with a view of laying two, three, or a longer term of years. These seeds, like that of the clean broad clover, are chiefly sown with oats or barley, and under similar circumstances, are either highly dunged, or receive a top-dressing in the spring of the year. Their first shoot is in like manner pastured by the ewes and lambs, after which, that part of the crop designed for mowing is shut up about the middle of May, and is generally considered to yield about 28 cwt. of dry hay per acre.

The number of bushels of ray-grass and trefoil, the latter in its unmill'd state, varies so much from soil and season, that it is absolutely impossible to state with any degree of certainty, what may be the average amount per acre; suffice it therefore to say, that when the farmer has beaten out as much as he may have occasion for his own use, or may be required by his neighbours, the thrashing ceases, and the whole is carefully stacked up for foddering the sheep and store cattle the following winter. The crops most commonly succeeding these seeds, are white or grey pease, sown upon a stale furrow; sometimes, but very rarely beans, oats upon the flag earth, or the ground receives a long or short fallow for wheat, or is prepared for early or late turnips.

SECT. XV.—SAINFOIN.

very excellent grass is cultivated with uniccess on all soils having an under-stratum of is sometimes sown upon land of a thin graure, and lying upon a deep bed of dry pebbly ut here it does not seem to flourish as well as thin dry chalky downs, for which it seems ticularly adapted, and where it is generally continue a fair mowing plant for 12 or 15 e quantity of unhulled sainfoin required for n acre is six bushels. This should always be n a clean tilth broad-cast, and harrowed in or barley.

plant, even in the most favourable situations, pt to be thin and feeble the first year, about ds of clean milled trefoil is sown with the per acre. These are commonly left to stand ummer for seed, and as a means of strength d thickening the young plant of sainfoin by s shelled out in making and saving the seed s is thrashed together, and afterwards sepa th proper sieves, when in some instances the as been known to yield 20, and the sainfoin s of unhulled seed per acre.

ainfoin is not supposed to be in full plant third or fourth year, when, in order to pre annual vigour, it is commonly assisted in the f February or March, with a top-dressing of turf-ashes, applied in the proportions with er as before mentioned; and which expense, the most elevated parts of the country, not g 20s. per acre, is always found to answer extremely well. The average produce during a period of seven or eight successive mowings, may from this statement be fairly estimated at 25 cwt. of dry hay per acre.

This grass, unless when reserved for seed, is always mown before the plant has acquired its full blossom; when sufficiently withered on one side, the swarth is turned; and that also receiving a sufficient drying, the whole is gathered into heaps conveniently disposed through the field, for loading upon the waggons, by which it is carried to the rick, placed in some appropriate situation for foddering the sheep-stock during the ensuing winter, in lambing time, and until the flocks can be exclusively maintained upon the forward grasses; always taking care to use the thrashed hay first, with turnips or any other green food, and to reserve all the richest and best fodder for the period which is generally the most pinching, viz. after the lambs become a good deal grown, and just before the new grasses come in.

This hay should never be so far dried as to become exhausted of its sap before it is put together: its undergoing a good full heat in the stack, seems particularly necessary for the purpose of maturing its juices into that saccharine principle which gives to it its best and most nutritious quality. This point attained, sainfoin will preserve nearly as good a keeping quality as that of any other hay, but otherwise it will become harsh and sticky, when such parts will be refused, even by hungry store cattle, for the softer and more inviting qualities possessed by well got barley straw. Its after-grass is held in high estimation for the purpose of weaning lambs, and into which they are generally put about the end of August or beginning of

September; by this time it is so well grown as to be out of the reach of any injury it might otherwise be subjected to from the close feeding of sheep.

The most common mode of breaking up the old sainfoin-lays is to half plough or rafter them as shallow as possible about Candlemas: in this state the ground lies for about a month, when taking the advantage of a dry spell, the rafters are dragged and cross-harrowed, when the balks of whole ground left by raftering are taken up by the breast-plough. These, after laying for some time, are tortured with the drags and harrows, and afterwards collected into heaps, and burnt. The breast-ploughing, collecting, and burning the green sward, will cost from 15*s*. to 25*s*. per acre. The former surface thus destroyed, and the ashes spread, the field is readily reduced to any state of subsequent tillage for turnips or for wheat; and when sufficiently in time, the early tankard-turnip is first cultivated, fed off, and the ground sown with wheat as early as possible.

When the whole of the surface of these old sainfoin-lays is clean breast-ploughed, the expense is seldom less than 40*s*. per acre; in both cases, however, if wheat immediately follow, it is extremely liable to injury from the wire-worm; the most effectual remedy against which, is to open them immediately after wheat-sowing with a neat rafter, to let the ground lay in that state till about the middle of March, when the rafters should be cross-harrowed, and torn to pieces as much as possible, and afterwards cross-ploughed as thin as possible, so as to plough clean. This should afterwards, about the middle of May, be again worked with the drags and harrows, for the destruction of the green sward, and closely sheep-folded about one head to a square yard, sown with early or late turnips, both closely penned off, and either succeeded with wheat or spring corn. The latter however should always be preferred, on account of the additional kneading and poaching to which the ground would be subjected during winter, beyond what it might be liable to, should the turnips be fed off for wheat in the fall of the year.

It has been frequently observed, that all such old sainfoin grounds should be kept under a convertible course of husbandry for 16 or 20 years; before the expiration of such time, experience shows that it would not be prudent or advisable to cultivate sainfoin on such lands; it must however be observed, that although this plant flourishes, and is by far the most suitable for a thin chalky soil (and certainly where nothing of the same value could be obtained at so easy a price), still a deep red or grey chisselly loam upon a calcareous bottom, would not only produce a far greater luxuriance in the growth of sainfoin, but would continue it in perfection a greater length of time, than can reasonably be expected upon the thin light lands, and where at this time it is so generally cultivated.

SECT. XVI.—LUCERN.

The value of this crop is justly growing into estimation wherever a proper trial has been made of it; with sainfoin, it favours a sound dry bottom, and like that plant also, greatly prefers a calcareous to a siliceous substratum. Although there can be no question but that the growth of this plant may be much promoted by enriching dressings of manure applied to the top-mould, yet the amazing depth to which it sends its roots, through a compact and almost solid body of chalk, and the luxuriance with which it grows during a dry spell of weather, and when most other vegetables become stunted in their growth and nearly lifeless, for want of moisture, evinces that much of the nourishment of this plant is taken in by its stems and leaves, during the prevalence of the dews and in the night season, or that it is transmitted from below by the extraordinary length of its tap-root, and which penetrates to a depth absolutely incredible to those unacquainted with the nature of the plant.

The culture of this truly important vegetable, when first introduced to the knowledge of our agricultural gentlemen in this island, was chiefly performed in rows or drills, and for the obvious purpose of keeping the crop clean, and free from trumpery: late experience however shows, that like sainfoin or broad clover, it may be cultivated broad-cast, and to an almost incalculable advantage. The points most essential to attend to upon this, as well as on every other occasion where land is preparing to lie at rest for many years (and where a previous draining is not required), is to be assured that the land is in tolerable condition with regard to heart, or the power of sustaining a good fair crop, and that it is completely cleansed of all root and seed weeds. These considerations attended to, barley or oats are sown broad-cast, and the lucern seed is sown at the same time about 16 lb. per acre, and with the spring corn harrowed in together.

The cultivator of lucern must not be discouraged with the languid appearance of his crop for the first, or perhaps second year. The third year will generally remove all his apprehensions, by his observing from the repeated cutting which the young plant has already undergone, that a close, strong, and uniform stock occupies the whole surface of the field. After a while, grass will however obtain footing among the lucern, and begin to spread to the annoyance and exclusion of the plant. Whenever this takes place, a simple and easy remedy is at hand, by scarifying and harrowing the surface, even so far as to give it the appearance of a fallow field; an operation that should always be performed as soon as the ground gets dry and settled in the spring of the year, and before vegetation comes on upon the lucern. This torturing of the surface, carried so far as to complete the severing of all the rubbish from the soil, the weeds should then be collected into rows purposely dropped in such order by the harrows, and afterwards made good by raking, and carefully collecting every joint of couch, or other trumpery together, heaped, and carted from off the field, and the whole carefully examined land by land afterwards, by women supplied with a broken knife, or some sort of hand-spud to take up all such root-weeds as may still have hold in the ground, or may lay upon the surface. The field thus cleansed, a common dressing of peat-ashes may be applied, and the ground afterwards rolled down and left free from any interruption to the scythe for the ensuing summer.

The effect of this treatment on an established plant of lucern, will be very different from what will be conceived by those unacquainted with its nature; the more that the crown of this plant is lacerated and divided, the greater disposition it has to stool and tillow forth in additional stems and succours, all of which being finally connected with the tap-root, receive sustenance from below; at the same that their source of nourishment is thus multiplied by absorption at the surfaces; and hence there is produced, not only an increase of plant, but a luxuriance in the general growth of the crop, that is truly astonishing.

It has not been unusual on these occasions, when the vacancies have been so wide as to demand a particular attention after scarifying, to strew a little fresh seed in such places, the pulverized state of the surface being such, as to ensure their striking and growing very well. Occasional dressings of farm-yard and stable-dung should also be applied upon the lucern during the winter season, but the number of weed seeds generally contained in such manures, must forbid their application on the fresh scarified surface, for the same reason that it is found favourable to the propagation of the young lucern upon the vacant places.

There are many gentlemen who attend to the culture of this plant, but chiefly on a small scale, in drills or rows. Among the broad-cast, and more important cultivators of this most valuable grass, Mr. Stares, of Fareham, may be stated to take the lead. This gentleman scarifies annually upon the established plants, and obtains the most abundant crops that can well be imagined. This plant is remarkably close, clean, and even: it is generally mown three times, and each crop converted into hay. Mr. Stares's first swarth the present year, may be fairly estimated at two tons per acre. The second growth on the 20th of July had not received a single drop of rain since the first hay was made, was intended to be mown the Monday following, and its smallest estimated produce was 25 cwt. per acre.

The stage of growth at which the first crop is usually mown, is shortly previous to its coming into full bloom. The third crop, on the most moderate computation, may always be reckoned at about a ton per acre, all calculated on dry trusses cut out from the stack. Upon the most moderate computation, Mr. Stares's lucern averages four tons of dry hay per acre. The aftermath is fed by all the stock of the farm during winter, and for which the lucern field is a common outlet; the food then afforded, and at such a season, is valued by Mr. Stares at 20*s*. per acre.

The quantity of this hay Mr. Stares usually allows to a horse per day is about 14 lb., and from attentive observation on its effects, he conceives it equally good for his road teams, which are constantly employed in heavy journeys; as for his plough, and other horses employed at home, he has no scruple in saying, that in comparison with clover, unthrashed trefoil, and ray-grass, or upland meadow hay, it is equally nutritious and wholesome. The manner of converting lucern into hay may very well be conceived, by what has been already stated in that respect as to the management of sainfoin.

Lucern was observed in one or two places to be raised upon a small scale, by transplanting it at one year's growth from the seed-bed into rows, upon a patch of ground prepared to receive it. This mode generally produces a bunch of laterals in the place of the tap-root, and will consequently require more frequent doses of manure to enrich the top-mould, and may answer very well on a small scale in the vicinity of a mansion or farm-house, where the ground may b full of rich feeding manures; but it will hardly adm of a question, whether lucern thus treated will ha the same durability and hardihood as it certainly do

poss

possess in situations where it is permitted to retain its first root, and where, under the management above noticed, it may be continued in high profitable vigour for a period of 15 or 16 years.

SECT. XVII.—BURNET.

THIS is a plant which forms a large portion of the herbage of the downs; a much larger and stronger species than the down burnet, is also found to flourish in many of the low grounds, and upon the cold clay loams: in both situations it appears to be indigenous, as there are no traces in such places of its ancient cultivation.

Mr. Birt, of South Wamborough, is the only gentleman met with upon the Survey, who appears to have paid any attention to the culture of this herb. Upon a part of this gentleman's estate, there is a six acre field sown with burnet as a substitute for clover: the soil varying from a thin chalk rubble, to a strong, grey, chisselly, and small flat flint, or brown shravy loam. This field carried for 14 days, on the first growth of the burnet, and prior to the month of June, 460 ewes with their lambs, during which time the latter were observed to thrive remarkably well, and to appear particularly gay. It was after this time shut up for mowing for hay, and with a view also to the saving of its seed: should the season have proved favourable for its aftergrowth, there was the fullest expectation of its yielding a ton of dry hay per acre; but of the quantity of seed which that burthen would be likely to afford, no estimate could be given, The same gentleman has recently turned his attention to the cultivation of,

SECT. XVIII.—YARROW,

WHICH, although upon a small scale only, the very luxuriant appearance it made, and being of a remarkably tender, sweet, and juicy nature, affords some reasonable grounds for admitting the possibility of its being brought forward as an useful green crop on a future day.

SECT. XIX.—HOPS.

THE Surveyor being much disappointed in not procuring such details as were earnestly solicited on the culture of this very important plant upon a large scale, is obliged to resort to such information as he was able to procure upon more narrowed occupations, but which, however correctly, candidly, and obligingly afforded, are still (in the judgment of the Surveyor) of much less value than were such details obtained from more extended examples, and which would necessarily include a greater variety of soil, aspect, and situation, and consequently more accurately agree with the management and results of the hop husbandry in general.

When a choice can be made for the culture of hops, the soil mostly preferred is the richest, mildest, and mellowest loam in the country; and as this choice is most frequently in the neighbourhood of, or at least no great distance from some large market or other town, where a regular supply of manure can be procured, the average value of such lands, they being most commonly calculated for a state of permanent pasture, cannot be well taken at less than 50*s*. per acre. The preparation which land of this quality must undergo to put it in proper condition for a hop-ground, is now to be enquired into, and its produce followed up until the ground is in full plant, and capable of yielding an average annual produce with other hop-grounds in its neighbourhood.

Dr. The Hop-ground per Acre.

To four ploughings, at 9*s*. per acre each,	£.1	16	0
Harrowing, dragging, rolling, and cleansing the ground after these different earths, at 5*s*. each time, ...	1	0	0
Fifteen cart or tumbril loads of home, or town dung, of the capacity of about 30 bushels each, first cost and carriage included, at 10*s*. each, ...	7	10	0
Barrowing, spreading, &c.	0	6	0
Parochial levies, 6*s*. in the pound on the rack-rent, ...	0	15	0
Tithe, great and small, compounded crop and fallow, at one-fourth of the rack-rent, ...	0	12	6
Rent, ...	2	10	0
Gripping and fencing, ...	0	1	0
Expense accruing per acre the first year, ...	£.14	10	6

Brought

Brought forward,	£.14	10	6
Interest upon this capital,	0	14	6
4300 nursery plants, at 6*d*. per 100,	1	1	6
Labour per contract per acre,	4	0	0
Sticks to mark the hills,	0	6	0
Planting,	1	10	0
Rent, tithe, taxes, gripping, and fencing, as above,	3	18	6
Expenses second year,	£.26	1	0
Interest on this sum,	1	6	0
Dressing of manure, as above stated,	7	16	0
Labour per contract,	4	0	0
3000 small poles for training the young plants, at 5*s*. per 100,	7	10	0
Rent, tithe, taxes, &c. as above,	3	18	6
Expense accruing the third year,	£.50	11	6
Interest on this sum,	2	10	6
Total expenditure per acre up to the close of the third year, from the time plantation was begun,	53	2	0

Per Contra Cr.

By value of hops the third summer, amounting on a general average to 2¼ cwt., and which, after deducting the expenses of gathering, drying, duty, and sending to market, will, on a general computation, be worth	20	0	0
Balance chargeable on the expenses of establishing the hop-ground,	£.33	2	0

Dr. *The Hop-ground per Acre.*

Interest accruing on 33*l*. 2*s*. £.	1	13	0
3000 full sized poles, 16 feet in length, first cost and carriage 22*s*. per 100, amounts to 33*l*., the annual interest of which is,	1	13	0
500 new poles, which will be annually required per acre for keeping up the stock, at 22*s*. per 100,	5	10	0
Annual dressing of manure as before,	7	16	0
Labour per contract,	4	4	6
Picking 630 lb. of hops, that being the average produce for the last seven years, at 1½*d*. per bushel green hops, which, when dry, will weigh about 1½ lb.	2	12	6
Pole pulling,	0	7	6
Measuring hops, and attendance on the pickers,	0	11	0
Carting to kiln,	0	12	0
24 sacks of charcoal for drying, at 1*s*. 9*d*. per sack,	2	2	0
Attendance on drying,	0	4	6
Bagging, 9*d*. per cwt.	0	4	9
Carriage to fair, and market charges,	1	5	3
Interest upon first cost of ladders, surplices, hair-cloths, bags, and a number of small implements exclusively belonging to the hop-ground and kiln, and valued at 5*l*. per acre, ten per cent. interest upon which amounts to	0	10	0
Allowance of middlings, or beer and rolls,	0	3	6
Hop-feast, or supper at the end of gathering, amounts per acre to about	1	2	6
Carry forward, £.	30	12	0

	£.	s.	d.
Brought forward, ...	£. 30	12	0
Duty on 630 lb. of hops, at 2*d*. per pound,	5	5	0
Rent, tithe, and taxes, as above, ...	3	18	6
Total expenses accruing upon an acre of hop-ground when in full plant, ...	39	15	6
Annual balance per acre in favour of the hop husbandry, ...	12	5	9
	£. 52	1	3

Per Contra Cr.

	£.	s.	d.
By 630 lb. of hops, being the average produce of the last seven years, and selling at the average price of 19½*d*. per pound, amounts to	51	3	9
Value of refuse poles, ...	0	10	0
Value of hop-bines, ...	0	7	6
Total value of an acre of hop-ground in full plant, ...	£. 52	1	3

Upon this statement it is first to be observed, that the ploughing, harrowing, and such tillage operations as were performed by the farmer, are charged at three-fourths of the price only that the same labours might have been procured to have been done by hire. The farmer working for himself is supposed to have reserved the same profit upon his own labour as would be expected to accrue to a neighbour or any other person working for hire; this virtually reserved profit is, therefore (as such work is done by the farmer and family), not properly chargeable to the debit of the crop in this instance, nor will it appear in any subsequent statement we may have occasion to make in elucidation of other points in the agricultural economy of this county.

As credit is taken for the full value of the produce, it seems reasonable that the full amount of all expenses, both contingent and direct, should be charged to the debtor side of the account.

In the instance from which the preceding statement is chiefly taken (though much enlarged and corrected by subsequent enquiries), the hop-ground contained six acres, the annual produce of the whole of which in the course of the preceding seven years fluctuated from 15 lb. only to 10,000 lb. and upwards. A much greater disparity of annual produce of six acres of ground cannot well be expected, and therefore, in the judgment of the Surveyor, the case forms a very suitable standard for deducing an average acreable produce, and which amounts to 630 lb., as before stated.

Although the tithe may be, and is upon many of these occasions taken in kind, still the sum which has always been regarded by the Surveyor as a fair equitable commutation between man and man, crop and fallow, for the great and small tithes of the generality of occupations possessing fair proportions of grass and tillage land, and held at a fair annual reserved rent, is here (viz. one-fourth of the rack-rent) and will be elsewhere, stated as the rule for such calculations.

Nothing is charged for the building and repairs of the hop-kiln; for whether such conveniences may be upon the premises or not, it may justly be conceived with other buildings to be valued and included in the annual rent of the occupation. The absolute expense, therefore, of drying the hops, whether at home or at a neighbouring kiln, seems all that can be required, or in anywise deemed necessary to be stated on this occasion.

SECT. XX.—HEMP AND FLAX.

By a reference to the minutes taken on the Survey, there does not appear to be a single instance of any attention being paid to the culture of hemp. This, however, with oak, seems so indispensable a provision towards the support of our present maritime superiority, that surprize is the more increased, when in the country before us is seen so large a portion of its present unproductive area totally in a state of nature, but which after being properly drained and sweetened by the operations of tillage, would admirably agree with the culture of this plant as well as that of *flax*, and for which a still wider extent is most particularly applicable. The few instances in which flax appears to have been cultivated, are conducted as follows. A piece of old pasture ground is usually chosen for the purpose, and which is neatly ploughed, a good full pitch, about the latter end of the month of February. In the end of April following it is sown broad-cast, three bushels to the acre, and harrowed in. It is kept well wed whilst growing, and generally stands until the seed is quite ripe, and which will commonly happen about the end of July. The flax is then carefully drawn by hand, and after weathering about ten days, it is tied into bundles, and removed to the barn for the convenience of beating out the seed, and which is found to vary from ten to fifteen bushels per acre.

The flax is then placed for eight or ten days in a pit of *running water*, which preserves the flax, from becoming of a blue or black colour: it is then taken out of the steep pit and spread upon grass land, where it remains until the bark or external covering of the plant is sufficiently rotted, when, after turning it once or twice to get it dry, it is again gathered up, tied into bundles, and removed to the barn or breaking house, a fair average crop yielding about 30 stone of good merchantable flax. The average value of the flax seed is about 12*s*. per bushel.

The expense of breaking the flax is estimated at 3*d*. per stone, that of heckling 14*d*. per stone: the quantity of tow produced in this operation varies according to the quality of the flax; if the flax is long, and of the best quality, 6lb. of tow only will be procured against 8lb. of flax: of the shortest and most inferior flax, 1¼ lb. of merchantable flax will only be obtained against 12½ lb. of tow, and thus the flax crop is generally found to fluctuate between these points of the highest and lowest quality, or in other words, between the longest and shortest plant, and which, heckled and prepared for market, will also be found to vary in its price between 7*d*. and 2*s*. 3*d*. per lb. The price of tow is commonly about 4½*d*. per lb.

The usual mode of regulating the spinning of flax, is by the lay of 800 yards; this is measured on a reel two yards round, and when eight of these lays make a pound, the price given for spinning is 8*d*. When the pound is spun to twelve lays, the price is 15*d*.; when to fifteen, it will cost 1¼*d*. per lay; and when to twenty lay in the pound, 3*d*. per lay. Mr. Smith, of Odiham Lodge, to whom the Surveyor is much indebted for information on this as well as many other points of rural management, has had flax of his own growth spun 22 lay to the pound, equal to 17,600 yards, or ten miles in length, and which for weaving only, *cost* 3*s*. 6*d*. *per yard*. The flax crop is generally supposed to have a meliorating effect upon the ground, and as such it is usually followed by a crop of wheat.

Mr. Seward, of Burriton, near Petersfield, another gentleman to whom the Surveyor is indebted for much politeness and useful information, cultivates flax occasionally, but merely with a view to its seed for finishing his fattening cattle. He manures a bean or pea arish which the preceding summer has been well tilled and cleansed, with the hand and horse-hoe; and upon one ploughing which is made between old and new Lady-day, the flax is sown broad-cast, about two bushels and a half per acre, and harrowed in. By this management he seldom fails procuring flax of a good working length, that is, from 18 in. to 22 in., and with a full and regular plant upon the ground. The crop stands until all the early seed is ripe, when it is drawn, and after being sufficiently weathered, is bound into sheaves, and removed to the barn to be headed. This done, it is again rebound, and sold to the flax-dressers at from 18*d*. to 20*d*. per hyle of ten sheaves. Ground is willingly appropriated by the grower for dew-rotting the flax, the herbage being always found very much to improve where the flax is spread. The average quantity of flax seed thus produced, may be stated at 18 bushels, and 40 dozen of good merchantable flax besides the above proportion of tow (as stated to be obtained from flax of the best quality), may be in this manner procured per acre.

Mr. Seward, whose attention to minutiæ is perhaps equal to most men, finds that the chaff of the flax is quite equal to the tail of common oats: horses eat it with great avidity when mixed with cut chaff, or other chaff and hulls, and the flax chaff greatly promotes their eating of the whole up clean.

It will most likely be objected to these three last articles, that the first subjects the farm to too unequal a contribution of manure, and which, if applied for other crops, would produce to the community a more valuable supply of bread corn or of animal food. To this it will not be farther necessary to reply, than merely to observe, that liquid, as well as solid food, is equally required for the support of the human constitution. The inhabitants of this island owe much of their hardihood and corporeal superiority to malt liquor, and it is only against the abuse of this beverage that any substantial objection can be made, an objection that will equally apply to the profuse, and unnecessary consumption of solid food also; the excessive use of which is far more sensual, and altogether less excusable. Among all the higher orders of society, and even those of the middle degree, a far greater consumption of solid food is made than is at all necessary for the preservation of health, or attaining to a comfortable old age: it is only among those engaged in the laborious avocations of life, that temperance in eating is generally to be met with, and among whom it prevails by necessity, and because they have it not their power to indulge in that, which under a more enlarged means of enjoyment, would become an equally pampered appetite.

Beer, however, being admitted as equally essential to the support of strength and vigour in the human constitution, as bread or other solid food, and both being liable to abuse in their application (and which it is believed that no sumptuary laws, however wisely contrived, would in the least contribute to diminish or controul), it cannot appear more discreet or rational to discourage or interdict the culture or the means of procuring the one, rather than the other. There being therefore a constant demand for hops as an essential ingredient in liquid food, it follows that our attention should be so directed to their culture, as always to command a cheap and regular supply of that article among ourselves, rather than to subject ourselves at any time to a precarious supply from our neighbours.

Hemp and flax, though unquestionably meliorators, may very justly be considered as exhausters of the soil; but there are lands in this county (and doubtless in many other parts of the united kingdom) to a very wide extent, particularly adapted to their culture, and upon which these plants might be raised as intervening crops for a long succession of years. The meliorating effects of hemp and flax upon the sound dry loams, when made the forerunners to a white straw crop, very much result from the covering such crops afford to the ground during their growth, and the succulency of their stems and leaves absorbing or taking in a large portion of their nourishment from the atmosphere. That this is the case is plain, or why is it that in proportion to the burthen of the flax or hemp crop, will also be that of the succeeding crop of wheat? When the one flourishes this year, so will the other in the succeeding summer; but when the hemp or flax ground is only partially or thinly covered, the ensuing crop of wheat is always found to be, in a proportionate degree, weak and scanty.

MISCELLANEOUS:

CHIEFLY IN COMPARISON WITH THE DRILL AND BROADCAST HUSBANDRY.

Some of the most rare, and perhaps exemplary practices in the cultivation of green and other crops, as practised in this county, are now to be noticed, and which will be done in the order they occurred upon the Survey.

Mr. Latham, of Rumsey, cultivates hops in a manner very different from the common practice. The rows are all ten feet a-part, and the distance of the hills upon each row, five feet; along, and on each side of the rows, a space, the whole of which does not exceed four and a half or five feet in width, is dressed in the usual manner, and kept open for hilling and supporting the rows of hops. The remainder of the interval, consisting of about one half or five feet in width, is annually employed in the culture of beans, wheat, barley, oats, clover, all neatly drilled, and followed up with the customary operations of the drill husbandry.

The crops, both of hops and corn, promised very well when viewed by the Surveyor; but the absence of Mr. Latham at that time, deprived him of the satisfaction of procuring such details of this management, as could not well fail in proving highly satisfactory to the Honourable Board of Agriculture and the public in general.

Dr. Latham, the very respectable father of the gentleman in question, very obligingly accompanied the Surveyor in his walks through these plantations, and should the details then promised, not reach the Surveyor in time to have place in this Report, there is no doubt but the younger Mr. Latham will at his leisure, and when thoroughly satisfied as to the principle upon which this husbandry is conducted, make it the subject of a full and particular communication to the Honourable Board. In the mean time, however, it may not be amiss to observe, that the ripening season for the hops not coming on till after the corn is harvested (unless perhaps under a shift of beans), from the access which the sun then obtains to the hop-plants, and the free circulation of air thereby admitted, the fruit ripens more equally, and the undergrowth comes ready for gathering as the fruit produced on the higher part of the poles: the number of poles per hill is sometimes three, but two good stout ones are by far the most common.

The Rev. Mr. Rivet, of Milford, derives much advantage from a peculiar appropriation he makes of his potatoe tops; a crop he cultivates to a very considerable extent. It is to be observed, that in the first place he dungs highly for the potatoes, which are planted upon three feet ridges, and when ripe, the haulm is drawn and laid close and carefully lengthways in the furrows: the ridges are then opened with a strong double mould-board plough, and the potatoes are gathered. A second operation of this kind, with farther spreading of the mould-board, turns out the remainder of the potatoes, and effects a complete covering of the potatoe haulm, the ridges now becoming the furrows. The furrows are scarified to raise the necessary mould for completing the ridge, which is finally closed with a strong double mould-board plough. The new ridges thus formed are smoothed with light and appropriate harrows, and the ground carefully looked over for any potatoes that may have escaped notice in the former operations. These ridges, measuring about three feet from centre to centre, are drilled then with wheat, two rows upon a ridge, after which they receive another light harrowing once in a place, lengthways, to cover the seed, and the whole operation is finished by striking out each furrow with a double-breasted plough, and leaving the field well gripped and water-furrowed. Mr. Rivet observes, that he has never had his potatoe crop so clean and completely taken up as by pursuing this method. The net produce of his wheat crops thus obtained last season, amounted to 28 bushels, and the potatoes which preceded them, ten tons per acre.

This wheat being sown on three-feet ridges, enables Mr. Rivet immediately after harvest to scarify the furrows a good deep pitch, and to drill them with buck-wheat, two rows in each furrow. This, when in full blossom, is ploughed under with the wheat-stubble; the furrows now made in the heart of the former ridge are scarified, and a double mould-board plough properly expanded, is worked through them, and raises as much mould as is again necessary to complete the ridge, and upon which wheat is drilled as before, two rows upon a three-feet ridge. The wheat cultivated in this manner, now the 15th of November, promises as much as can possibly be expected from its infant state.

Mr. Whitcher, of Sopeley, a very ingenious and intelligent member of the Christchurch Agricultural Society, is very much in the practice of sowing upon his turnip wheat late in the spring of the year, about one pound of the common late turnip seed per acre. The land, in common with the greater part of the valley of the Avon, is of a light and sandy nature, and although the turnip plants seldom appear of any considerable size at harvest, it is surprising how much they flourish (provided the stubble ground is not stocked) after the autumnal rains, and the vast quantity of food thus procured for late use. In cases where the wheat-stubbles are intended to be sown with turnips, it might perhaps be more advisable to sow rape or coleseed among the wheat for late spring use; at any rate, as the making of food for cattle is, after draining where required, the grand desideratum of all good husbandry, every hint should be suggested, and every means resorted to, by means of which the farmer may be enabled to carry his stock through the winter; upon these he *ought*, and if judiciously laid in, *will*, have a due profit on his capital so employed, exclusive of the incalculable advantage it affords him of making *muck*, which in the just apprehension of the northern inhabitants of this island, is always regarded as *the mother of the meal-chest.*

Mr. Richards, of North-house, sows rape about the 1st of July, about 6 lb. per acre, with three bushels of ray-grass for spring food. The rape will generally be ready for the first feeding by the beginning of October, when a small bite also of the ray-grass will appear. The feeding it thus early, and occasionally with the cole-seed to Christmas, has not been found in the slightest manner to injure it. The ray-grass with the cole-seed in the spring of the year, affords an admirable pasturage for the ewes and lambs, and about Midsummer (by which time the prime and best virtues of the ray-grass is expended), the field receives a short summer-fallow for wheat, and frequently with no other dressing that what is thus procured. The autumnal and spring food thus produced, is considerable, and equally acceptable at both seasons.

It has already been observed, that many of the broad-cast farmers are in the practice of drilling upon such soils and in such situations as the drill machinery can work without difficulty and with effect; the fact is certainly so, and the practice seems generally increasing in appropriate situations.

Mr. Stares, of Fareham, drills in the following manner: his wheat frequently follows his potatoes: the land being well ploughed, harrowed, and cleansed from weeds, and all other incumbrances incidental to the preceding crop, is then clean ploughed into appropriate sized ridges, carrying about five furrows to the yard, in each of which is drilled by a hand or barrow drill, wheat prepared in the ordinary way, and to the amount of four bushels per acre. This ground being represented as perfectly clean, it becomes unnecessary to scarify or horse-hoe. The few patches of weeds that may occasionally appear, are immediately removed by weeding and hand-hoeing; produce 40 bushels at 60 lb. each per acre.

Upon this practice it may not be improper to remark, that every grain of seed wheat so deposited, tells in the ensuing crop; it is far less liable to injury from the rooks and larks, and the grain being placed at an equal and proper depth, the coronal roots are afterwards formed at such a distance below the surface of the field, as best suits with the nature of the plant, and the peculiarities of the soil; and which in most cases is from an inch and an half to two inches below the settled surface of the field. The plants being thus seated, grow strong and vigorous, and which if necessarily prostrated by heavy storms, having such excellent foot-hold, the crop soon resumes an erect posture, and in that state continues until it is ready to be shorn.

The quantity of seed here used will also appear extraordinary, but upon land not prone to stool or tillow forth its wheat plants, though otherwise in excellent heart and condition, such a quantity of seed is nothing more than what becomes indispensably necessary, and which such lands are calculated to sustain, and, as in the case before us, bring to the highest perfection. Crops of corn thus produced, will always be more even and productive than where the plant is much given to tillow, and which is uniformly the case in all loose hollow-bottomed ground, thus producing two or more growths, and a large proportion of under and unripe corn at harvest.

The wheat-stubbles, after being gleaned and shacked by the swine and poultry, are close haulmed, and afterwards turned under a neat clean furrow, and sown either with turnips or winter tares, or planted with the Battersea cabbage, two feet and an half each way, and requiring near 10,000 plants to the acre. These, if purchased, will cost *6d.* per 100, and the expense of putting them in regular rows will cost about *6d.* per thousand more; the plants are either reserved for spring food, or appropriated as a supply for the Portsmouth and Gosport markets, the shipping, or Haslar hospital: their value for spring food is esteemed at *5l.*, but when disposed of for kitchen use, it may be considered as treble that price per acre. The most common practice with regard to the appropriation of this crop, is to select out all the prime and best heads for market, and to consume the refuse with sheep or cattle.

These intermediate green crops are usually succeeded with barley; the tilth for which is generally prepared with two ploughings and proportionate harrowing and rolling. This crop is in like manner with the wheat drilled under furrow, requiring five bushels of seed; produce 48 bushels of 50 lb. each per acre.

With this crop, clean clover is sown broad-cast, afterwards mown, and comes up again for wheat the following autumn, dragged and harrowed in; or if sown with clover, trefoil, and the white Dutch clover, the ground lies at rest for two years, when it comes up again for oats, pease, or beans, sown broad-cast upon a stale furrow. The land is summer-fallowed or got in order for turnips, or it is appropriated to the culture of tares or some other green crops.

Some open common fields were noticed in the parishes of Harbridge, Hebberley, and Ellingham, which, in like manner with other common fields in the county, are subject to the ordinary management of two crops and a fallow; but as before noticed, part of this latter shift is occupied with a miscellaneous covering of green crops, in preparation for wheat, which is again succeeded with Lent corn.

Pursuant to the arrangement prescribed by the Honourable Board of Agriculture, the foregoing statements of the culture of corn and green crops in this county, have been drawn up with all imaginable care, from the information collected on the Survey; but as it would require much time and combination of circumstances for any one to become acquainted with the results of any regular series of management herein adverted to, without connecting such detached statements into something like a system, and in which it would also be desirable that the relative merits of the broad-cast and drill husbandry should respectively appear, the Surveyor has spared no pains in procuring such information upon these subjects, as he trusts will tend very much to elucidate a question that has been no less agitated than its importance demands.

However well informed, experienced, and candid men, may have been led to differ in opinion on this subject, such difference is presumed to have arisen from no other cause than the peculiarity of the soil to which either the broad-cast or drill husbandry may have been applied, leading to conclusions on both sides equally vague and erroneous, but from which it can only be inferred upon this, as well as upon most other occasions, where truth and utility are the sole and only objects in view, that opinions both for and against either practice have been well and correctly founded; and that in equally eligible situations both practices are proper and advisable to be pursued. This truth can no where be more fully shewn than from what has taken place on the experimental farm in the parish of Clanfield, lately belonging to, and under the direction of the South Hants Agricultural Society.

Mr. Jolliffe, the present very respectable occupier of that farm at Clanfield, relates, that after a trial of about five years upon two hundred acres of arable land, one moiety of which was exclusively employed in the drill, the other in the broad-cast husbandry, the Society thought proper to decline any farther trials in illustration of their respective excellence, and the stock, crop, and lease of the farm, were sold. This farm is now cultivated on the most improved system of broad-cast management, by the gentleman just mentioned: his green crops are good, and the white straw crops vastly superior to the generality in that neighbourhood. It is here to be observed, that the soil of this farm varies from a tough red loam abounding with flints, to a dry chalk rubble, a strong grey chisselly loam; a shrave of small flat stones, mixed with a tough brown loam, and some red, yellow, and white pebbly gravel; all of which ultimately resting, though at various distances, upon the common chalk rock of the country.

Details of the practice of some of the most intelligent occupiers of the county, are now to be noticed in the order they were given, and upon which it will only be necessary for the Surveyor to make such remarks

marks as he finds best to accord with his long experience in practical husbandry.

Average expense of conducting a course of husbandry in a five-shift course or rotation, upon the strong arable lands in the chalk district (rejecting from the estimate the sainfoin, and all such high down lands as may have been broken up of late years, and possessing a thin dry staple of soil), beginning with a thorough winter and summer-fallow for wheat.

The Crops are Dr. to Expenses.

	£.	s.	d.
To four clean ploughings upon a former lay or oat-stubble, at an average expense of 10*s*. each earth per acre, ...	2	0	0
Intermediate dragging, harrowing, and rolling, after each earth, at 1*s*. 6*d*. per acre,	0	6	0
First cost, carriage, and spreading ten cart or tumbril loads of good home or town-dung, at 10*s*. per load, ...	5	0	0
Three bushels of seed wheat, at 10*s*. 6*d*. per bushel, ...	1	11	6
Preparation and sowing, ...	0	0	6
Draining and fencing, ...	0	1	0
Weeding, ...	0	2	6
Reaping, binding, and shocking, ...	0	10	6
Carting, stacking, or housing, ...	0	5	0
Thatching, including value of straw, ...	0	6	6
Thrashing and dressing 28 bushels of wheat, at 5*d*. per bushel, ...	0	11	8
Market charges and delivery, ...	0	6	0
Carry forward, ... £.	11	1	2

Brought

the turnips are neither so sure to take, or so good when they do hit, yet other demands for the manure appear as paramount considerations, and the practice has been long, and is most likely to be continued.

The Crops are Dr. to Expenses.

To twice, but more frequently thrice ploughing the turnip land, with proportionate harrowing and rolling, as before,	£.1	14	6
Seed barley four bushels, at 4*s*. per bushel,	0	16	0
Sowing 4*d*. and weeding 8*d*. per acre,	0	1	0
Mowing 20*d*., pooking or heaping, with raking and occasional turning, 18*d*. per acre,	0	3	2
Carting, stacking, or housing,	0	4	6
Thatching, including value of straw,	0	6	6
Thrashing and dressing four quarters and a half, at 1*s*. 10*d*. per quarter,	0	8	3
Market charges and delivery,	0	6	0
Rent, tithe, parochial payments, &c.	1	5	9
Expense of barley crop,	£.5	5	8

Per Contra Cr. by Produce.

By 36 bushels of barley, at 4*s*. 3*d*. per bushel, or 34*s*. per quarter,	7	13	0
Straw of this crop,	1	5	0
Chaff or awns, 6*d*. per quarter as above,	0	2	3
Shackage of barley-stubble,	0	2	
Value of barley crop,	£.9	2	

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The Crops are Dr. to Expenses.

Upon the mild and more open loams, the wheat-stubble is winter-fallowed and prepared with four earths, and the proportion of intermediate tillage operations for cleansing and pulverizing the ground in preparation for turnips, as above,	£.2	6	0
Turnip seed and sowing,	0	2	6
Twice hoeing, at 7*s*. and 4*s*. per acre,	0	11	0
One dozen of the common hazel hurdles, and which will generally last about two years, at 8*s*. per dozen,	0	4	0
Attendance upon 260 sheep one week, whilst consuming these turnips,	0	5	0
One year's rent,	0	16	0
Ditto tithe,	0	4	0
Ditto parochial payments,	0	4	9
Ditto fencing, draining, &c.	0	1	0
Expense of turnip crop,	£.4	14	3

Per Contra Cr. by Produce.

By agistment for one week of 260 head of ewes or wethers, at 4½*d*. per head,	4	17	8
Value of turnip crop,	£.4	17	8

Note.—The common usage of the country is seldom dung for turnips, when sown after wheat, and that full dressing of manure dung or sheep-fold has been given for that crop; and although in this case the half a bushel of ray-grass, in which case the ground would lay two summers under grass, instead of being ploughed the ensuing Michaelmas for clover wheat. On account of the great pains that are generally taken among the farmers in this county to procure seed wheat, a great deal of which is brought from Taunton Dean in Somersetshire, the seed wheat will be uniformly charged at 2*s.* per bushel above the average produce of such crops; and although it would prove highly satisfactory to go through all the principal changes, the experienced farmer finds it necessary to introduce in a subsequent rotation of crops, yet as such details might to some of our readers become tedious and disinteresting, and to others, perhaps, too far enlarge the sphere of cavil and objection, it is judged most prudent to stop here, and proceed to a view of what has been generally agreed upon as the result of this management.

Abstract of the preceding Statements.

	£.	s.	d.		£.	s.	d.
To expense of wheat crop, - -	13	10	8	By value of wheat crop,	13	12	10
Ditto of turnip ditto,	4	14	3	Ditto of turnip ditto,	4	17	8
Ditto of barley ditto,	5	5	8	Ditto of barley ditto,	9	2	9
Ditto of clover ditto,	4	10	8	Ditto of grass ditto, -	8	5	0
Total amount of expenses in 5 years, -	£.28	1	3	Total value of produce in 5 years, -	£.35	18	8
Amount of balance per acre in this time, -	7	17	0				

Which sum divided by five, will give the net profit per acre per annum upon land thus managed, to cover the interest of the capital employed, and reward the skill, labour, and attention of the occupier and his family, and which on the present occasion amounts to 1*l.* 13*s.* 5*d.*

The Rev. Mr. Halton, who lives at Truxton, near Weyhill, is the only gentleman in the chalk district that pursues the drill husbandry, and follows it up through all its branches. He very obligingly permitted the Surveyor to minute the following particulars from his practice.

He begins as early as possible after wheat-sowing to plough a last year's stubble, or piece of ground which may have lain under grass for more than one year. This he ploughs a good full pitch, which done, the ground remains in that state for some time, when the next operation is to upridge it crosswise to the direction in which it was last ploughed. This is always done before Candlemas, and in that state it lies until the end of April or beginning of May. The ridges are then split down with the same instrument (viz. a strong double-breasted plough), and in order to pulverize the top and submould, they are scarified crosswise with Cook's improved scarifier, the whole staple or depth of soil being thus equally tilled, and by subsequent harrowing, completely cleansed from all root-weeds and trumpery, is then rolled down, and three-feet ridges are accurately marked out in a direction with the hang or inclination of the field.

The centre of a strong double-breasted plough is then held exactly upon the scored line, and the whole field is thus regularly cast into ridge and furrow. These furrows are dressed with a compost of dung, mould, &c. from 25 to 30 one-horse cart-loads, holding about 20 bushels each, per acre. The ridges are then again split down with the double-breasted plough. The manure in the furrows becomes covered, and the ridges thus reversed are now rolled, the roller having attached to it a smoothing beam, which taking two ridges at a time, reduces the tops of the ridges to an even and uniform bearing.

Two rows of turnips are then drilled nine inches a-part upon these ridges: the intervals between the rows are scarified, and the turnips are set out upon the rows with a hand-hoe. The larger intervals are horse-hoed as frequently as occasion may require; and the whole is finally finished by striking out the furrows with a double-breasted plough. This method is seldom known to fail, even upon thin dry rubbly lands, of producing a fair average crop of turnips, and which are always drawn and carted home to be consumed by cows or feeding cattle.

As soon as the field is cleared (which is always before Candlemas), the first operation is to split down the turnip ridges, and in that state the ground lies until near the time for sowing barley, when the next working which the barley tilth undergoes, is that of closely scarifying diagonally and crosswise the field, until the surface and subsoil is considered to be in a proper condition for the reception of the seed barley, and which after the necessary harrowing and rolling, is then drilled in nine inches a-part, requiring about two bushels of seed per acre, and yielding an average produce taken upon the crops of the three last years, of 45 bushels three pecks of 51 lb. 2 oz. each per acre. The weight of the broad-cast barley in the same parish is 50 lb. 12 oz.; hence there appears to be a difference of 6 oz. per bushel in favour of the drilled barley upon the same sort of land.

Previous to the last tillage operation which is given to the barley, and a month or six weeks after it has been sown, ten pounds of red, and two pounds of yellow clover, are sown broad-cast per acre. This, with the aid of a dressing of peat or turf-ashes, applied in the spring of the year, will yield an average produce of 28 cwt. of hay from the first swarth per acre.

The after-grass is then fed down as close as possible, and the clover-lay ploughed with a skim-coulter; that is, a coulter to which is attached a fin or share, which cuts the furrow-slice on the land side to a thin feather-edge, leaving on the furrow-side of such slice a small comb or balk: the thin feather-edged slice is cast down to the bottom of the furrow, and the small balk with the great body of the slice is taken up a good full pitch, and whelmed completely under. The field is then rolled smooth and close down, and after harrowing to obtain a sufficiency of loose mould for the drill to work in, the wheat is put in nine inches a-part; seed required about two bushels; produce 24 bushels of 61 lb. 2 oz. each per acre. The broad-cast wheat in the same parish weighs 61 lb. per bushel.

The land occupied by Mr. Halton, is chiefly of a chalk rubbly nature, thin in staple, but much deepened and improved by scarifying. A grey chissclly loam occurs towards the lower hang of the fields, and which Mr. Halton has always found particularly tractable under the operation of the scarifier. The lower parts of some of his fields present a shrave consisting of small flat flints in immense numbers, and these combined with a tough brown loam, forms by far the greatest difficulty in scarifying and working to a proper depth with the drill machinery.

The management of the whole, with its general results, may be thus taken.

The Crops Dr. to Expenses.

To the first clean earth or ploughing from a late stubble or lay-ground, ...	£.0	12	0
Ridging with a double-breasted plough, ...	0	4	0
Splitting ridges down, ...	0	4	0
Scarifying crosswise, ...	0	3	6
Harrowing, rolling, couching, &c.	0	2	6
Marking out three-feet ridges, ...	0	0	6
Opening of the furrows with the double mould-board plough, ...	0	4	0
25 loads of compost manure, including carting and strewing in the furrows, at 5*s.* each, ...	6	5	0
Splitting down the ridges to cover the dung,	0	4	0
Rolling and smoothing tops of ridges, ...	0	0	6
Drilling, ...	0	0	6
Three quarters of a pound of seed, ...	0	1	3
Scarifying intervals between the turnip rows,	0	0	6
Hand-hoeing first time, and setting out the plants, ...	0	4	0
Scarifying or horse-hoeing the larger intervals between the ridges, ...	0	2	6
Hoeing and examining plants second time,	0	2	6
Cleaning up the furrows with a double-breasted plough, to admit the free passage of the water, ...	0	4	0
Gripping and fencing, ...	0	1	0
Drawing and carting home the turnip crop,	1	10	0
Rent per acre, ...	0	14	0
Tithe, ...	0	3	9
Parochial payments, ...	0	5	0
Expense of turnip crop, ...	£.11	9	0

Per Contra Cr. by Produce.

By one acre of turnips, averaging about 16 tons, tops and tails included, and delivered in the homestead as per	£.5	0	0
Value of turnip crop, ...	£.5	0	0

The Crops Dr. to Expenses.

To upridging turnip land as soon as cleared, ...	£.0	4	0
Scarifying ridges crosswise and obliquely, 3*s*. 6*d*. each time, ...	0	7	0
Harrowing and rolling in preparation for the drill, ...	0	1	6
Seed barley two bushels, at 4*s*. 3*d*. each, ...	0	8	6
Drilling, ...	0	0	6
Rolling and harrowing subsequent to ditto,	0	0	8
Ditto ditto about 10 or 14 days after, ...	0	0	8
Rolling without the corn-harrow, ...	0	0	6
Mowing, pooking, raking, and occasional turning, as before, ...	0	3	2
Carting, stacking, or housing, ...	0	4	6
Thatching, including value of straw, ...	0	6	6
Thrashing and dressing 5½ quarters, at 1*s*. 10*d*. per quarter, ...	0	10	1
Draining and fencing, ...	0	1	0
Rent, 14*s*.; tithe 3*s*. 9*d*.; and parochial payments 5*s*., as before, ...	1	2	9
Delivery and market charges, ...	0	15	0
Expense of barley crop, ...	£.4	6	4

The Crops Dr. to Expenses.

To the first clean earth or ploughing from a late stubble or lay-ground, ...	£. 0	12	0
Ridging with a double-breasted plough, ...	0	4	0
Splitting ridges down, ...	0	4	0
Scarifying crosswise, ...	0	3	6
Harrowing, rolling, couching, &c.	0	2	6
Marking out three-feet ridges, ...	0	0	6
Opening of the furrows with the double mould-board plough, ...	0	4	0
25 loads of compost manure, including carting and strewing in the furrows, at 5*s*. each, ...	6	5	0
Splitting down the ridges to cover the dung,	0	4	0
Rolling and smoothing tops of ridges, ...	0	0	6
Drilling, ...	0	0	6
Three quarters of a pound of seed, ...	0	1	3
Scarifying intervals between the turnip rows,	0	0	6
Hand-hoeing first time, and setting out the plants, ...	0	4	0
Scarifying or horse-hoeing the larger intervals between the ridges, ...	0	2	6
Hoeing and examining plants second time,	0	2	6
Cleaning up the furrows with a double-breasted plough, to admit the free passage of the water, ...	0	4	0
Gripping and fencing, ...	0	1	0
Drawing and carting home the turnip crop,	1	10	0
Rent per acre, ...	0	14	0
Tithe, ...	0	3	9
Parochial payments, ...	0	5	0
Expense of turnip crop, ...	£. 11	9	0

[illegible]

Per Contra Cr. by Produce.

By agistment value of young grass after harvest and through the winter till shut up for mowing, ...	£.0	12	6
28 cwt. of hay, at 3*s*. 6*d*. per cwt.	4	18	0
Second crop clover or aftermath, ...	1	5	0
Value of grass crop, ...	£.6	15	6

The Crops Dr. to Expenses.

To ploughing the clover-lay neatly under with the skim-coulter, ...	£.0	12	0
Rolling with a heavy two or three horse roller, ...	0	1	9
Harrowing for the purpose of raising mould for drilling, ...	0	2	0
Drilling nine inches a-part, ...	0	0	8
Seed wheat, five pecks, at 10*s*. 6*d*. per bushel,	0	13	2
Preparation in the usual way against smut,	0	0	3
Harrowing the drilled ground twice in a place, to cover over the seed, ...	0	1	0
Three times scarifying and harrowing the intervals on the ensuing spring and early part of summer, at 8*d*. each time,	0	2	0
Twice rolling between and after these operations, at 6*d*. each time, ...	0	1	0
Weeding out thistles, cockle, &c. ....,	0	1	0
Reaping, binding, and shocking, ...	0	10	0
Carting, stacking, or housing, ...	0	5	0
Thatching, including value of straw, ...	0	6	6
Carry forward, ...	£.2	16	4

	£.	s.	d.
Brought forward, ...	£.2	16	4
Draining and fencing, ...	0	1	0
Thrashing and dressing 24 bushels of wheat, at 5*d*. per bushel, ...	0	10	0
Delivery and market charges, ...	0	15	0
Rent, tithes, and parochial payments, ...	1	2	9
Expense of wheat crop, ...	£.5	5	1

Per Contra Cr. by Produce.

	£.	s.	d.
By 24 bushels of wheat, at 8*s*. 6*d*. per bushel, ...	£.10	4	0
Straw of this crop, ...	1	5	0
Chaff or bulls of ditto, at 1*d*. per bushel on the dressed corn, ...	0	2	0
Shackage, and agistment value of wheat-stubbles until broken up for turnips or some other green crops, ...	0	7	6
Value of wheat crop, ...	£.11	18	6

Abstract of the preceding Statements.

	£.	s.	d.		£.	s.	d.
To expense of turnip crop, - - -	£.11	9	0	By value of turnip crop, - - - -	£.5	0	3
Ditto of barley ditto, -	4	6	4	Ditto of barley ditto, -	10	17	8
Ditto of grass ditto, -	3	8	7	Ditto of grass ditto, -	6	15	6
Ditto of wheat ditto, -	5	5	1	Ditto of wheat ditto, -	11	18	6
Total amount of expenses in 4 years,	£.24	9	0	Total value of produce in 4 years,	£.34	11	3
Amount of balance per acre in this time, - - - -	10	2	3				
	£.34	11	3				

Which sum divided by four, will give the net profit per acre per annum of land thus managed, to cover the interest of capital employed, and reward the skill, labour, and attention of the occupier and his family, and which in the present case amounts to 3*l*. 6*s*. 0¾*d*.

Note.—Under the general circumstances of obtaining a crop of turnips by winter-fallowing after wheat, and without manure, the crop will seldom exceed, tops and tails included, 15 tons per acre, and as the average sized sheep of this county, when fed as stores and upon turnips only, will require about 18 lb. daily of such food, an acre of these turnips will carry 260 sheep one week, and which, at a fair average agistment price of 4½*d.* per head, will amount to 4*l.* 17*s.* 8*d.*, as before stated; the above price, therefore, of 5*l.* per acre, is greatly within their real value, particularly when the crop is charged with the expenses of drawing and carting home, thus adding 30*s.* per acre to the expense, and at the same time giving a superior value to it on the score of its going much farther, and in the proportion of at least 20 to 16.

Average expense and produce accruing in the common broad-cast husbandry, as practised on the open, gravelly, and other mixed loams in the southern parts of the county, on a five-fold rotation of management, and which commences upon a former lay by a short or bastard summer-fallow for wheat.

The Crops are Dr. to Expenses.

	£.	s.	d.
To the breaking earth, or first clean ploughing, ...	£.0	8	0
Turning back this earth, furrow for furrow,	0	7	6
Cross ploughing, ...	0	8	0
Twice harrowing, at 1*s.* 4*d.* per acre each time, ...	0	2	8
Twice rolling, at 1*s.* per acre each time, ...	0	2	0
Twice dragging, at 2*s.* 9*d.* per acre ditto, ..	0	5	6
Carry forward, ...	£.1	13	8

Brought

Brought forward, ... £.	1	13	8
15 loads of dung or compost mixing, of about 40 bushels each, at 5s. per load, including carriage, ...	3	15	0
Spreading, ...	0	2	6
Two bushels and a half of seed wheat, at 10s. 6d. per bushel, ...	1	6	9
Preparation and sowing, ...	0	0	6
Weeding, ...	0	1	3
Rolling and occasional harrowing, ...	0	1	9
Fencing and gripping, ...	0	1	0
Reaping, binding, and shocking, ...	0	10	0
Carting, housing, or stacking, ...	0	6	3
Thrashing and dressing 26 bushels, at 5d. per bushel, ...	0	10	10
Thatching, including value of straw, ...	0	6	6
Delivery and market charges, ...	0	12	0
One and a half years' rent, at 18s. per acre,	1	7	0
Ditto tithes, at one-fourth of the rack-rent,	0	7	0
Ditto parochial disbursements, at about 6s. in the pound on the rack-rent, ...	0	8	0
Expense of wheat crop, ... £.	11	6	0

Per Contra Cr. by Produce.

By 26 bushels of wheat, at 8s. 6d. per bushel, ...	£. 11	1	0
Straw of this crop, ...	1	5	0
Chaff or hulls, 1d. per bushel on dressed corn,	0	2	2
Shackage and feed of wheat stubbles, ...	0	5	0
Value of wheat crop, ... £.	12	13	2

The Crops are Dr. to Expenses.

Four times ploughing this wheat-stubble in preparation for turnips, at an average expense of 7*s*. each time, ...	£.1	8	0
Dragging, harrowing, rolling, cleansing, and burning rubbish, in the intermediate times of ploughing, ...	0	8	6
Turnip seed and sowing, ...	0	1	0
Harrowing previous to hoeing, ...	0	0	6
Hoeing once only, ...	0	6	0
Folding, or penning and pulling up, ...	0	8	0
Draining and fencing, ...	0	1	0
One year's rent, ...	0	18	0
Tithe, ...	0	4	6
Parochial payments, ...	0	5	0
Expense of turnip crop, ...	£.4	0	6

Per Contra Cr. by Produce.

By one acre of turnips fed off, and valued, thus consumed, at	£.4	14	6
Value of turnip crop, ...	£.4	14	6

The Crops are Dr. to Expenses.

Two earths, or ploughings after turnips, at 7*s*. per acre each time, ...	£.0	14	0
Intermediate dragging, harrowing, and rolling, for a barley tilth, ...	0	8	6
Carry forward, ...	£.1	2	6

Brought

Brought forward, ...	£.1	2	6
Four bushels of seed barley, at 4*s*. 3*d*. per bushel, ...	0	17	0
Sowing 4*d*., rolling 8*d*.	0	1	0
Weeding, ...	0	0	9
Mowing 1*s*. 6*d*., pooking, raking, &c. 1*s*. 9*d*.	0	3	3
Draining and fencing, ...	0	1	0
Carting, stacking, or housing, ...	0	5	6
Thatching, including value of straw, ...	0	6	0
Thrashing and dressing 32 bushels of barley, at 20*d*. per quarter, ...	0	6	8
Delivery and market charges, ...	0	12	0
Rent, tithe, and parochial payments, ...	1	7	6
Expense of barley crop, ...	£.4	13	2

Per Contra Cr. by Produce.

By 32 bushels of barley, at 4*s*. 3*d*. per bushel, ...	£.6	16	0
Straw of this crop, ...	1	5	0
Chaff or awns, at 1*d*. per bushel on the dressed corn, ...	0	2	8
Shackage, and feed of barley stubble and young seeds for ten weeks after harvest, two sheep per week, at 4½*d*. per head, ..	0	7	6
Value of barley crop, ...	£.8	11	2

The Crops are Dr. to Expenses.

10 lb. of common red clover, at 8*d*. per pound, ...	£.0	6	8
One bushel of ray-grass and trefoil, the latter unhulled, at 24*s*. per quarter, ...	0	3	0
Carry forward, ...	£.0	9	8

Brought forward, ...	£.0	9	8
Sowing, ...	0	0	3
A light dressing of dung, peat, or turf ashes, at the average expense of	1	0	0
Rolling and gathering stones, ...	0	2	6
Mowing, ...	0	1	6
Making and carting, ...	0	8	0
Thatching, including value of straw, ...	0	4	6
Draining and fencing, ...	0	1	0
One and a half years' rent, tithes, and parochial assessments, as per wheat crop, ...	2	2	0
Expense of grass crop, ...	£.4	9	5

Per Contra Cr. by Produce.

By ten weeks agistment of young seeds, two sheep per acre before shut up for mowing, at 4*d*. per head per week, ...	£.0	6	8
30 cwt. of clover, trefoil, and ray-grass hay, at 3*s*. 6*d*. per cwt.	5	5	0
After-grass, and agistment value of this grass, until the July twelvemonth, when it is supposed to be again broken up and summer-fallowed for wheat, &c. estimated to carry two sheep in the winter, and six in the summer months, at 7*s*. per head each season, ...	2	16	0
Value of grass crop, ...	£.8	7	8

Note.—The common agistment price for wintering store sheep, is 7*s*. per head for the winter half year; and the same ground is always supposed to run three for one during the summer season, at which time the agistment price for store sheep (not ewes and lambs) continues the same.

Abstract of the preceding Statements.

	£.	s.	d.		£.	s.	d.
To expense of wheat crop,	11	6	0	By value of wheat crop,	12	13	2
Ditto of turnip ditto, -	4	0	6	Ditto of turnip ditto, -	4	14	6
Ditto of barley ditto, -	4	18	2	Ditto of barley ditto, -	8	11	2
Ditto of grass ditto, -	4	9	5	Ditto of grass ditto, -	8	7	8
Total amount of expenses in 5 years,	£.24	9	1	Total value of produce in five years,	£.34	6	6
Balance from produce per acre in this time,	9	17	5				
	£.34	6	6				

Which sum divided by five, will give the net profit per acre per annum of land thus managed, to cover the interest of capital employed, and reward the skill, labour, and attention, of the occupier and his family, and which in the present case amounts to *1l. 19s. 6d.*

Some farther account of the drill husbandry in the southern parts of the county, and upon land of much the same nature whence the last statement was taken.

The Crops are Dr. to Expenses.

To one clean ploughing of a late stubble after wheat sowing, ...	£.0	8	0
Turning of these furrows back in the month of February, ...	0	7	6
Harrowing and rolling with a heavy roller,	0	1	6
One clean cross-ploughing, ...	0	8	0
Dragging, harrowing, &c.	0	2	6
Scarifying crossways and oblique, ...	0	3	6
Rolling with fixed harrow, ...	0	1	6
Marking out the ground, and putting the fallow into three-feet ridges, ...	0	3	3
Carry forward, ...	£.1	15	9

Brought forward, ...	£. 1	15	9
Ten loads of rotten dung, including cartage and strewing in the furrows, at 10*s*. 6*d*. per load, ...	5	5	0
Reversing of the ridges to cover the dung, flattening their tops, and drilling two rows of turnips on each ridge nine inches a-part, ...	0	3	3
Seed, ...	0	1	0
Horse-hoeing the furrows, ...	0	1	0
Scarifying between the turnips on the ridges,	0	0	6
Twice hand-hoeing the turnips, at 5*s*. 6*d*. the first time, and 3*s*. the second, ...	0	8	6
Scarifying the furrows, ...	0	1	0
Striking up ditto with a double-breasted plough, ...	0	1	0
Fencing and draining, ...	0	1	0
Rent, tithe, and parochial payments, as before, ...	1	7	0
Drawing and carting home turnips, ...	1	10	0
Expense of turnip crop, ...	£. 10	15	0

Per Contra Cr. by Produce.

By one acre of turnips delivered in the homestead, or otherwise drawn from off the turnip ground, and consumed upon a dry layer, ...	£. 5	15	6
Value of turnip crop, ...	£. 5	15	6

The Crops are Dr. to Expenses.

To scarifying the turnip ridges crosswise, and to a good full pitch, ...	£.0	4	0
Harrowing, rolling, cleansing, and marking the land into ten-feet ridges, ...	0	2	6
Ploughing the field into these lands, ...	0	7	0
Harrowing and rolling before the drill, ...	0	2	0
1¾ bushels of seed barley, at 4*s.* 3*d.*	0	7	4
Drilling 12 inches a-part, ...	0	0	6
Harrowing after the drill, ...	0	0	6
Harrowing with the patent corn-harrow after the coronal roots are formed, ...	0	0	9
Ditto and before the corn runs for the spindle,	0	0	9
Rolling after the seeds are sown, ...	0	0	6
Mowing, ...	0	2	0
Pooking and raking, &c.	0	2	0
Carting, stacking, or housing, ...	0	5	6
Thatching, including value of straw, ...	0	5	0
Fencing and draining, ...	0	1	0
Thrashing and dressing 34 bushels of barley, at 2*s.* per quarter, ...	0	8	6
Delivery of crop and market charges, ...	0	10	0
Rent, tithe, and parochial payments, as before, ...	1	7	0
Expense of barley crop, ...	£.4	6	10

Per Contra Cr. by Produce.

By 34 bushels of barley, at 4*s*. 3*d*. per bushel,	£.7	4	6
Straw of this crop,	1	5	0
Chaff or awns, as before,	0	2	10
Shackage and seed of barley-stubble, and young seeds for 10 weeks after harvest, as before stated,	0	7	6
Value of barley crop,	£.8	19	10

The Crops are Dr. to Expenses.

To 10 lb. of red clover and 5 lb. of trefoil, at 8*d*. per pound,	£.0	10	0
A light dressing of dung, mixing, turf or peat ashes, at an average expense of	1	0	0
Rolling and occasional stone-gathering,	0	2	6
Mowing,	0	2	0
Making and gathering into heaps,	0	4	0
Carting and stacking,	0	5	6
Thatching,	0	5	0
Draining and fencing,	0	1	0
Rent, tithes, and parochial assessments,	1	7	0
Expense of clover crop,	£.3	17	0

Per Contra Cr. by Produce.

By 10 weeks agistment of young seeds, two sheep per acre, as before stated,	£.0	6	8
32 cwt. of hay, at 3*s*. 6*d*. per cwt.	5	12	0
Value of after-grass, until ploughed up for wheat at Michaelmas,	1	5	0
Value of grass crop,	£.7	3	8

The Crops are Dr. to Expenses.

To neatly ploughing with the Suffolk or other proper but common plough, the clover-lay,	£.0	10	0
Rolling the clover flag with a heavy roller, and harrowing with a view to raise mould for drilling,	0	4	6
Seed wheat, nine or 10 gallons, at 10*s*. 6*d*. per bushel,	0	13	2
Preparation 3*d*., and drilling nine or 12 inches a-part, 1*s*.	0	1	3
Covering the seed with light harrows,	0	1	0
Twice rolling and harrowing the wheat,	0	3	0
Weeding the wheat for cockle, wild oats, &c.	0	0	6
Draining and fencing,	0	1	0
Reaping, binding, and shocking,	0	10	0
Carting and stacking,	0	7	0
Thatching,	0	6	6
Thrashing and dressing 28 bushels of wheat, at 5*d*. per bushel,	0	11	8
Delivery and market charges,	0	10	0
Rent, tithe, and parochial payments, as before,	1	7	0
Expense of wheat crop,	£.5	6	7

Per Contra Cr. by Produce.

By 28 bushels of wheat, at 8*s*. 6*d*. per bushel,	£.11	18	0
Straw of this crop,	1	5	0
Chaff or hulls, as before,	0	2	4
Shackage and feed of wheat-stubble,	0	5	0
Value of wheat crop,	£.13	10	4

Note.—It will most probably be objected, that the straw of wheat and barley in these estimates are alike charged at 25*s.* per acre, when the value of wheat straw for litter, thatch, &c. will certainly prove by far the most valuable. To this it is answered, that were the whole of the wheat straw so disposed of, the objection would be good; but as there is only a small portion of the wheat straw produced in the country, so sold, and as that is only in the vicinity of the larger towns, its general inferiority for fodder is set against such local advantages, and both are considered as justly rated at the same price.

Abstract of the preceding Statements.

	£.	s.	d.		£.	s.	d.
To expense of turnip crop,	10	15	0	By value of turnip crop,	5	15	6
Ditto of barley ditto, -	4	6	10	Ditto of barley ditto, -	8	19	10
Ditto of clover ditto, -	3	17	0	Ditto of clover ditto,	7	3	8
Ditto of wheat ditto, -	5	6	7	Ditto of wheat ditto, -	13	10	4
Total amount of expenses in 4 years,	£.24	5	5	Total value of produce in four years,	£.35	9	4
Balance from produce per acre in this time,	11	3	11				
	£.35	9	4				

Which sum divided by four, will give the net profit per acre per annum of land thus managed, to cover the interest of capital employed, and reward the skill, labour, and attention of the occupier and his family, and which in the present case, amounts to 2*l.* 15*s.* 11*d.*

Notwithstanding that the foregoing statements might be considered as nearly conclusive on the relative merits of the broad-cast and drill husbandry, practised under nearly the same circumstances as to situation, with the choice only of the milder loams for the drill practice, yet it may not be amiss, having the materials at hand, to go a little farther into these matters.

We shall therefore begin upon an old lay or former stubble, which is ploughed clean and to a good full pitch in the month of January, or perhaps later.

The Crops are Dr. to Expenses.

To first earth, ...	£.0	8	6
Ditto ploughed back, furrow for furrow, ...	0	7	0
Rolling with a two or four-horse roll, ...	0	1	6
Cross ploughing, ...	0	8	0
Dragging, harrowing, and rolling, ...	0	3	6
Ploughing the fourth time, ...	0	6	6
Ten loads of rotten dung, carriage, and spreading included, at 10*s*. 6*d*. per load,	5	5	0
Marking and ploughing the dunged land into ten-feet ridges, ...	0	8	6
Harrowing before drilling, ...	0	0	9
Seed wheat as before, ...	0	13	2
Preparation, and drilling nine inches a-part,	0	1	0
Harrowing after drilling, ...	0	0	9
Draining and fencing, ...	1	0	0
Rolling and scarifying in the months of March and April, ...	0	1	6
Rolling and harrowing with the fixed or corn harrow, ...	0	0	9
Weeding as before, ...	0	0	6
Reaping, binding, and shocking, ...	0	10	0
Carting, stacking, or housing, ...	0	6	0
Thatching, including value of straw, ...	0	7	0
Thrashing and dressing 32 bushels, at 5*d*. per bushel, ...	0	13	4
Delivery and market charges, ...	0	10	0
Rent, tithes, and parochial payments, ...	1	8	3
Expense of wheat crop, ... £.	12	2	6

Per Contra Cr. by Produce.

By 32 bushels of wheat, at 8*s*. 6*d*. per bushel,	£.13	12	0
Straw of this crop,	1	5	0
Chaff or hulls, as before,	0	2	8
Shackage and feed of wheat stubbles,	0	5	0
Value of wheat crop,	£.15	4	8

The Crops are Dr. to Expenses.

To ploughing the wheat-stubble a good full pitch immediately after sowing wheat,	£.0	8	0
This turned back again about Candlemas,	0	7	6
Dragging 1*s*. 6*d*., twice rolling, once harrowing, at 9*d*. each time,	0	3	9
Ploughing the third time,	0	6	6
Rolling and harrowing, at 9*d*. each,	0	1	6
Scarifying a good full pitch,	0	2	3
Harrowing and rolling,	0	1	6
Two bushels and a half of seed barley, at 4*s*. 3*d*. per bushel,	0	10	7
Drilling at nine inches a-part,	0	0	9
Harrowing after the drill,	0	0	9
Scarifying as soon as the rows are marked by the young barley,	0	0	9
Rolling and harrowing with the corn harrow,	0	0	9
Weeding,	0	1	0
Draining and fencing,	0	1	0
Mowing,	0	1	8
Carry forward,	£.2	8	3

Brought forward, ...	£.2	8	3
Pooking, raking, &c.	0	1	9
Carting, stacking, or housing, ...	0	5	0
Thatching, including value of straw, ...	0	6	6
Thrashing and dressing eight sacks of barley, at 10*d*. per sack, ...	0	6	8
Delivery and market charges, ...	0	8	0
Rent, ...	0	18	0
Tithes, ...	0	4	6
Parochial assessmeuts, ...	0	5	9
Expense of barley crop, ...	£.5	4	5

Per Contra Cr. by Produce.

By 32 bushels of barley, at 4*s*. 3*d*. per bushel, ...	£.6	16	0
Straw of this crop, ...	1	5	0
Chaff or awns, ...	0	2	8
Shackage of barley stubble and agistment value, as before stated, for ten weeks, ...	0	7	6
Value of barley crop, ...	£.8	11	2

The Crops Dr. to Expenses.

To 12lb. of red clover and trefoil, at 8*d*. per pound, ...	£.0	8	0
One bushel of ray-grass, with carriage and sowing, ...	0	3	6
Rolling, and occasional stone-gathering, ...	0	2	6
Mowing 1*s*. 8*d*.; making and gathering 4*s*. 6*d*.	0	6	2
Carting or stacking, ...	0	4	6
Thatching, 4*s*.; draining and fencing, 1*s*. ..	0	5	0
Rent, tithes, and taxes, as before, ...	1	8	3
Expense of grass crop, ...	£.2	17	11

Per Contra Cr. by Produce.

	£.	s.	d.
By agistment value of young seeds before they are shut up for mowing, as before stated, ...	£.0	6	8
28 cwt. of clover, trefoil, and ray-grass hay, at 3*s*. 6*d*. per cwt.	4	18	0
Value of after-grass from July till Candlemas,	1	15	0
Value of grass crop, ...	£.6	19	8

Note.—The ground so cultivated usually remains until the following January or Candlemas, when it is again broke up for pease, beans, tares, fallowed for turnips, or again for a crop of wheat.

Abstract of the preceding Statements.

	£.	s.	d.		£.	s.	d.
To expense of wheat crop, - -	£.12	2	6	By value of wheat crop,	£.15	4	8
Ditto of barley ditto, -	5	4	5	Ditto of barley ditto, -	8	11	2
Ditto of grass ditto, -	2	17	11	Ditto of grass ditto, -	6	19	8
Total amount of expenses in 3 years,	£.20	4	10	Total value of produce in 3 years,	£.29	15	6
Balance from produce per acre in ditto,	9	10	8				
	£.29	15	6				

Which sum divided by three, will give the net profit per acre per annum of land thus managed, to cover the interest of capital employed, and reward the skill, labour, and attention, of the occupier and his family, and which in the present case amounts to 3*l*. 3*s*. 6*d*.

As there is but little land that would be capable of undergoing for any length of time such a driving system, the following statement is taken up on a supposition that no dung has been applied for wheat, but that all the other operations not incidental to the full wheat crop, have been incurred as before.

The Crops are Dr. to Expenses.

The balance of expense, therefore, to charge upon the first or wheat crop, in this series, will amount to ………………	£.6	14	2

Per Contra Cr. by Produce.

By 24 bushels of wheat, at 8*s*. 6*d*. per bushel, ………………………………	£10	4	0
Straw of ditto, ………………………………	1	5	0
Chaff of ditto, ………………………………	0	2	0
Shackage and feed of wheat-stubble, …………	0	5	0
Value of wheat crop, …………………	£.11	16	0

The Crops are Dr. to Expenses.

To ploughing the wheat-stubble a clean full pitch as soon as possible after wheat sowing, ………………………	£.0	8	0
Turning these furrows back, as before, ………	0	7	6
Dragging and harrowing, ………………………	0	3	0
Twice scarifying shallow, ………………………	0	2	6
Cross-ploughing, ………………………………	0	7	6
Dragging, harrowing, rolling, gathering, and burning trumpery, ………………………	0	3	3
Marking and opening three-feet lands with the double-breasted plough, …………………	0	3	6
Carry forward, ……	£.1	15	3

Brou[illegible]ht

Brought forward, ...	£.1	15	3
Eight loads of rotten dung, carriage and strewing in the furrows included, at 10*s*. 6*d*. per load, ...	4	4	0
Reversing ridges to cover the dung, ...	0	3	6
Rolling and smoothing tops of ridges, ...	0	0	6
Drilling two rows of turnips upon each ridge, and seed, ...	0	1	9
Scarifying turnips and intervals, 9*d*. each, ..	0	1	6
First hand-hoeing, 5*s*.; second hand-hoeing, 3*s*.	0	8	0
Fencing and draining, ...	0	1	0
Rent, tithe, and taxes, as before, ...	1	8	3
Drawing and carting turnips, ...	1	5	0
Expense of turnip crop, ...	£.9	8	9

Per Contra Cr. by Produce.

By value of turnip crop drawn and fed off upon a dry layer, ...	£.6	10	0
Value of turnip crop, ...	£.6	10	0

The Crops are Dr. to Expenses.

To ploughing turnip ground a full clean pitch across the ridges, ...	£.0	8	0
Dragging, harrowing, and rolling, ...	0	3	0
Shallow scarifying twice, at 1*s*. each, ...	0	2	0
Rolling before and after, ...	0	1	6
Drilling barley, at nine inches a-part, ...	0	0	9
Seed barley, 2½ bushels, at 4*s*. 3*d*. per bushel,	0	10	7
Carry forward, ...	£.1	5	10

Brought

Balances per acre per ann. collected on the drill practice:

	£.	s.	d.
	£.3	6	0
	2	15	11
	3	3	6
	3	1	1
	£.12	6	6
	4		
Mean sum accruing per acre per ann. as a net profit on the drill husbandry, ...	£.3	1	7
Ditto on the broad-cast husbandry, ...	1	17	5
Difference in favour of the drill practice per acre per ann.	£.1	4	2

And which must amply compensate for any additional capital there may be necessarily employed in the purchase, wear and tear, of expensive drill machinery.

Rye is often drilled upon the wheat-stubble for spring food, and although tares and colesseed have also been made the forerunners to a crop of turnips, in like manner fed off and generally carrying more stock than rye, still it has been observed, that turnips succeed better after rye than any other intermediate crop which may follow either wheat or oats.

In the statements given of the drill and broad-cast husbandry, a singular agreement may be observed in the net results of the different practices, all of which very fully demonstrate the accuracy and candour of the gentlemen who so very obligingly afforded the information, and whom the Surveyor very cautiously guarded from receiving any clue or bias from preceding statements.

The price of wheat is taken at about the average it bore whilst the Surveyor was pursuing his enquiries on these subjects, and which he humbly conceives is about the standard required to keep pace with the present value of money, and the consequent high price which every other article of necessity seems to bear in the present day. Should the price of wheat fall much below 8*s*. 6*d*. per bushel, it requires no great talent to foresee the melancholy train of evils with which it will be accompanied.

Though the drill husbandry appears to be conducted with considerable advantage as to its results in comparison with the broad-cast practice in the southern parts of the county, and even in the chalk district; still in the judgment of the Surveyor, these results are capable of a yet farther increase, not by any additional produce to be obtained on an average from such management, but in some measure diminishing the expense by which it is procured; and there is no part of the practice so conspicuous and capable of remedy, as in the usual mode of making a fallow for wheat, turnips, or barley.

The details on this subject exhibit an uniform practice of making the first, or breaking earth, to consist of a deep full pitch, and which after lying a few weeks, is then turned back slice for slice, and in the same manner it was first ploughed, and still consisting of the whole unbroken furrow slices the whole length of the field, six inches thick, and from nine to ten inches wide, strongly tied, and connected together with the roots of its former green sward, or perhaps foul wheat or oat-stubble. Before any thing can be done in the way of working these matted slices, a cross-ploughing must be performed through them; but this, under most circumstances, seems impossible to achieve, without compressing the whole together as much as possible by a heavy stone-roller; which performed, and the cross-ploughing effected at nearly the same expense as was incurred in the breaking earth, the whole staple of soil of the field is then cut into cubes of six by nine inches, and this is the utmost that can possibly be obtained from three distinct ploughings, rolling, &c.; and this afterwards requiring the patience of Job, and the strength of Hercules, to reduce to any thing like a good husband-like tilth, either for the broad-cast or drill husbandry. Would it not therefore on such occasions, be far more advisable to let the breaking earth consist *of half ploughing or raftering only*, and that performed as thin and as evenly as possible, by having the plough so sat and held, as to cut the furrow side of the rafter to a thin feather-edge, and leave it neatly turned over upon the comb or balk of whole ground left on the right hand or furrow side of the plough? This operation is well known and practised in other parts of the county, and by which immense labour and expense is spared, and time saved in the subsequent working of the fallows. These rafters lying until the contact of the two green swards covered with mould have rendered loose and tender the former surface (and which will always be found to happen in a less space of time than were the whole inverted to the bottom of a close cold furrow), are dragged and harrowed crosswise, when the whole of the raftered slices, and a considerable part of the combs or balks, will be found easily broken, and go readily to pieces. A cross-ploughing is then performed over the raftered ground, as shallow as possible, so as to plough clean; drags, harrows, rollers, &c. are then applied, and with such effect, as completely to destroy every vestige of the former green sward; and all its concomitant trumpery may be thus exterminated in one-third of the time and expense that such a field would have required had it been ploughed clean and to a good full pitch when first broken. The deep, full, or stirring earth, which the land may require, should then be given, and which, upon all such lands, can be more regularly and better performed than in the winter season, when from the moisture and looseness of the subsoil, the plough will be drawn too deep in some places, and on the shrave or gravel (from the pitch given to the plough) too shallow in others. It is surely not necessary to urge any thing farther on this subject; but should any one entertain doubts of this effect in cleansing and pulverising the fallows, it is only necessary to observe, that nothing can be more plain or evident, than that raftering in the first instance, must completely divide the whole matted covering of the field, by cutting its surface into ribbands; and that it must surely be more easy to disunite a thin slice of four or five inches wide from 3 to 0 inches thick, than to have a close connected cube six inches by nine, to contend with, and that strung and united together by all the root-weeds and grasses that may have been growing upon the field for one, two, three, or more successive seasons.

SECT. XXI.—VINEYARD.

The following account of the vineyard planted by the late Sir Richard Worsley, at Undercliff, in the Isle of Wight, is taken from the Rev. Mr. Warner's Agricultural View of that Island, drawn up for the consideration of the Honourable Board of Agriculture, in 1794.

"The classical owner of this charming retreat, having remarked a very sensible mildness of climate in this part of the island (occasioned by its lying immediately open to the south, and being sheltered to the north and east by a high range of rocky hills, which at the same time shut out the biting winds, and strongly reflect the rays of the sun on the soil beneath them), determined to attempt the propagation of the vines of Anjou, the climate of which place corresponded in some measure with that of Steep Hill. For this purpose he procured the necessary number of plants of the two grapes, called *white muscadine* and *plant verd*, from which the natives of the western part of France make a light white wine; and at the same time hired an Anjouin, to attend to their management and cultivation.

"The man began his operations in the beginning of 1792: having gotten rather more than an acre in a very sheltered spot into proper order for the reception of the plants, in the month of March he put them into the ground.

"This piece of land is divided into several beds, each bed being about twelve feet in breadth: these are separated by foot-paths, for the convenience of a near approach tothe vines; the plants themselves are placed in rows at the distance of a foot and a half from each other.

"As this first experiment wore a very encouraging appearance, another piece of ground, rather more to the eastward, and about an acre and a half in extent, was gotten into order, and a similar plantation made in the year 1793. These two plantations comprise together about three acres, and contain 7000 plants.

"The man who has the care of these plantations seems very equal to the charge, and keeps them in high order: the stem of each vine is about eight inches from the ground, and the earth around it is well hoed and free of weeds. He does not allow more than two shoots to remain on each stem; these are cut off in the ensuing March, and their place supplied by other young ones. The shoots also are not suffered to run into luxuriance, but kept at the length of two feet or two feet and a half. In September last, when I had the pleasure of seeing these plantations, every vine bore the appearance of health and vigour; there was some little fruit on two or three of those which had been first planted, but this prematurity was to be attributed to their being situated near a rock, and receiving the rays of the sun strongly reflected from it. The vine-dresser did not expect any considerable quantity of grapes till the fourth year after the planting. He seemed to entertain no doubt as to the success of his labours, and assured me he had never before seen such strong and prosperous young plants in any vineyard.

"But in order to give every possible chance to this experiment, Sir Richard has not confined himself to one mode of planting only. In a bank within his enclosure, having a slope of about 45 degrees to the south, he has made a terrace, consisting of seven stages formed of rough stones, rising like a flight of steps one above another; against the perpendicular part of each stage are placed trellises, and on them the vines are intended to be trained in the manner of espaliers. The plants were put in last March.

"With respect, however, to this mode of propagating vines, it may admit of doubt whether it may be likely to succeed or not, owing to the small degree of nourishment which the plants *can* possibly receive as they now stand; for although the vine, when *mature*, will flourish where there is little soil, nay, where there is apparently no soil at all, amongst gravel, flints, and rocks, drawing support with its minute but far extending fibres, from sources imperceptible to the human eye, yet I believe in its *infant* state it requires more nutriment, and more room for the extension of its tender roots, than it will find where it is at present planted.

"I cannot close this short, and I fear imperfect account, of Sir Richard Worsley's vineyard, without adding every wish for the success of an experiment which displays great public spirit, and has been attended with considerable trouble and expense."

To this statement the Surveyor subjoins some observations by Colonel Mitford, in an annoted Report to the Honourable Board.

"My grandfather was a vineyard planter, and made wine from his vineyard on the coast of the New Forest, which kept sound more than 20 years. Of the flavour I can say nothing, the vineyard having been destroyed before I was born, so that I was but a boy when the wine I have mentioned was 20 years old. He had formed a great project in concert with his neighbour Sir James Worsley, grandfather of Sir Richard, to make extensive vineyards in the Isle of Wight. Why it was abandoned I know not. Putting together my observations of vineyards in travelling through France, Germany, and Italy, with what I have known of vineyards in England, I am inclined to think that good wine, perhaps fine wine, might be made in the Isle of Wight; nevertheless, except perhaps in some particular spots, which a lucky hit, or extensive, and of course expensive, experiment only can discover, I doubt if vine culture would answer as well as common husbandry; I rather think too, that I should not have preferred that spot in the Isle of Wight which Sir Richard Worsley has fixed upon, though I am told that last year his Anjouin vine-dresser continued to be much satisfied with his project."

On a subject so new and interesting, the Surveyor could not fail of being sensibly disappointed, when, upon his approaching Undercliff, he was not only refused admittance to that charming little spot, but from the cliffs above, the whole of the late vineyard was shown to him in the condition of a verdant lawn, and, with the only visible remains of the works of the vineyard, a stone wall about five feet high ranging through the middle of it.

Through the assistance of Mr. Smith, of Languard farm, he procured the following information from a person who worked constantly in the vineyard, and was afterwards employed in grubbing up the vines. This person relates, that no material difference of soil occurs in the vineyard from that which may be noticed without the enclosure; this varying from a stiff to a more tender loam, both lying at different depths upon a freestone bottom (that stone generally characterizing the rocks of Steep and Undercliff): upon this latter the vines were found to come earlier, and the fruit seemed to possess a superior quality, though the quantity did not exceed that which was produced upon the deeper and stronger loam.

The vines were of different sorts, and, as before observed, imported from France, accompanied with a person from that country, who superintended the management of the vineyard for about seven years. The first error which appears to have been committed in

conducting this experiment after the plants arri
was that of their being put in too close, viz. two
by three, but which were afterwards singled ou
four by six, and which distance was found to an
much better. The planting was made (upon a fo
wheat-stubble winter-fallowed) in the month of
bruary, but the ground received the young s
without any manure. The first year's shoots fron
young plants did not exceed six inches.

The second summer, and annually afterwards,
earth was all drawn from the roots of the vines, w
were laid as open as possible to receive the influen
the summer's sun. After the vintage, the earth
returned upon the roots, for the purpose of prote
them from the effects of frost during the ens
winter.

In the month of February, and before the sap b
to ascend, the pruning was performed, leaving
eyes only upon the last year's shoots; these were
ported by stakes which kept them about two feet
the ground.

The young vinewood and tendrils were perm
to grow freely during the summer, the whole gr
remaining upon the plants until the ensuing Febr
when the old wood was cut away, and the last y
growth pruned in the manner above-mentioned.

The area of the vineyard was about two acres a
half. The fruit was generally gathered in Oct
and the quantity of wine produced any one s
during the seven years, did not at any time e
half a hogshead: the usual quantity varied from
20 gallons. The quality of the wine was of a r
inferior nature, but the total miscarriage of the
yard is ascribed principally to the lateness of the

of grape with which the ground was planted; for had the common grapes of the country, viz. the sweet water, black cluster, or muscada, been cultivated in the manner described, in a similar aspect, and out of the reach of the sea spray, there remains little doubt but the experiment would have succeeded to the utmost wishes of the owner. That the situation was by no means an eligible one for the purpose, is evident, from the sea wind being found uniformly injurious to the growth of the vine and its foliage; for whenever in heavy gales of wind the spray settled in the vineyard, it so far burnt and destroyed the wood and foliage of the vines, as in a short time to render them capable of being rubbed by hand into a complete powder.

Sainham and Sheepwash farms, in the parish of Godshill, afford, with many other places in the island, infinitely more eligible situations for the culture of the grape vine than Undercliff, which, although a very warm situation, is rendered altogether unfit for that purpose, from the great prevalence of the south-westerly winds. It is with regret that the Surveyor has not any thing farther to notice on this very interesting subject.

CHAP. VIII.

GRASS LAND.

Meadows.—Those of the greatest extent and value are found along the respective water-courses in the county.

In the woodland part of the county, the proportion between the enclosed, cultivated, arable, and grass land, is stated about one-seventh of the latter to six-sevenths of the former.

A cold moory soil, upon a brown and yellow clay veined with sand and gravel, gives to most of the low lands in this district a wet and backward character, with a correspondent coarse and sour herbage. Some exceptions there certainly are to this statement; but these, whether forming the sides of hills, or lying low in vallies, owe the superiority they may possess, chiefly to the judicious relief which may have been afforded to them by draining in such places. It would seem in a country of this description, that many opportunities would offer for applying its native waters to the flowing of the lower grounds. Advantages of this nature are certainly to be met with in many places, but the inhabitants, *generally*, do not seem to appreciate them justly. In many places where irrigation has been attempted, the indispensable preparation of a previous draining has been omitted. This has uniformly contributed to make bad worse, and the system itself has thus been unjustly disgraced and reprobated.

The moory substance which composes the soil of many of these low grounds, is also found to lie immediately upon a gravel, under which is often found a solid bed of blue, brown, and yellow clay; the latter strongly marked with an oxyde of iron. The gravelly stratum varying from ten to fifty inches in thickness, any attempt to drain the surface must prove utterly ineffectual, unless the gravel is penetrated, and a fall obtained for the water, which filters through it, into a drain made in the retentive stratum of clay below. By this means, the whole conducting field or stratum of gravel would be lain dry, and the mould which covers it would consequently partake of the same advantage. The surface or downfal waters may readily be relieved by the gripping-plough, and thus becoming perfectly sound and dry, would afford the best possible subject for subsequent irrigation.

Although the moory character generally predominates through these low grounds, there are not wanting for some parts of their soil, to consist of a sand and gravelly loam, but upon a clayey subsoil, and also intermixed with veins of sand and gravel. In such cases nothing short of a full and complete hollow-draining, at a rod a-part, can effectually relieve the land, and which many of the higher parts of the country seem also to require in a like or less degree. Did not brushwood, which is so easily procured, afford an ample supply for filling the hollow-drains, the chalk along the southern boundary of the woodland district might very conveniently be made its substitute; *but neither are required, or ought to be used, when the substratum is sufficiently entire and compact to admit of turf-soughing.* Where trials have already been made of chalk, it is always found to answer extremely well. In most cases, however,

ever, which came within the notice of the Surveyor, the drains, on a due examination, appeared to be unnecessarily capacious, and particularly wide at the bottom; filled a vast deal too high with either wood, chalk, or stones, and thus requiring a much heavier expense in their execution than what is evidently necessary.

The herbage, on the general run of these low grounds and pastures, is not thought equal to the feeding of a cow or steer exceeding 7½, or at the utmost eight score per quarter. The better, and indeed prime pastures (of which the District before us affords but a small proportion), will nearly finish an ox of 10½ or 11 score per quarter, in the same time, that is, between the middle of May and that of November; but in either case, the extent of ground over which the feeding cattle would be admitted to range, was not satisfactorily ascertained.

No manuring or compost was particularly understood as being applied, either as to time or expense, in the renovating of these grass lands. The produce of hay from those of the first quality, was estimated at 36 cwt. per acre, and of the inferior 22 cwt. The after-grass not consumed by the dairy cows or store cattle, is usually applied for the agistment of sheep taken in during the winter months, at 7*s.* or 8*s.* per head, and in the manner before noticed.

The rent or value of this land, whether meadow or pasture, is found, from various statements, to fluctuate between 15*s.* and 50*s.*, and which, on a general average, is thought to equal about 28*s.* per acre.

In the chalk district, the proportion of permanent grass land (excepting the sheep downs) is small in comparison to the extent of land subject to a system of up and down husbandry. It consists of some upland meadow or pasture ground, and which seemed to occur in the greatest quantity south of Overton, and extending towards Popham and the Strattons. The low grounds and vallies of the Teste, the Auton, the Itchen, and the river that passes through Titchfield, and obtains its exit into the sea at Hilt-head, exhibit many laudable exertions which have hitherto been made, and are still making, in converting the eligible parts of such vallies into water-meadow.

The great inconvenience to which the occupations in the higher parts of the country have been subjected, through the want of a small portion only of permanent grass land, compelled the former tenantry in many places to lay down small enclosures near their homesteads, or other convenient situations, and which being constantly pastured, and kept as a dry layer, for the flocks in lambing time, have at length acquired a very close and valuable herbage. The subsoil of these lands being always of a sound dry nature, a much earlier vegetation comes forward, than can possibly be expected in the more elevated parts of the down country, or even the more depressed vallies, where the herbage may not have been cherished and brought forward by winter irrigation.

There are other small detached parcels of dry meadows in other parts of this District, and which, strictly speaking, are not circumstanced as the above: such are those in the neighbourhood of Popham-lane, in the higher parts of the vallies, not accessible to irrigation, in particular places along most of the principal roads, and in the vicinity of all the larger towns: these latter, however, are not strictly applicable to farming purposes, and therefore do not come so fully within our present view. The others are generally rated at about 30*s*. per acre. They are dressed about once in two years with dung, or a compost of mould, road scrapings, &c. soaper's waste, lees, wood and coal-ashes, and when shut up for mowing about the 1st of May, their average produce seldom reaches a ton per acre; 16 cwt. and 18 cwt. have been the quantities most frequently given in. They are no where within this district, of sufficient extent to make them of any consequence as grazing land, or beyond that of partial and temporary accommodation.

The most striking shades of difference in the soil of the sheep downs, have already been noticed under three distinct heads, in the Chapter which treats of Soil generally. It will therefore be only necessary in this place to say a few words on their herbage, and what appears to the Surveyor as being the best mode of managing and preserving it in its purest excellence.

It is found to consist of a prodigious variety of plants and grasses, as well upon the black mould as upon the soils possessing a grey and a hazel colour, and whether of an equally loose, or of a more close and compact nature: the value of all, but particularly of the former, will very much depend upon the close treading and paring (by the sheep) which it constantly undergoes. This done, the pasturage will preserve its value; and hence it follows, *that sheep of a peculiar size and hardiness are alone proper for such sheep-walks, and no others;* for whenever the down sheep-walk rises above the height of good store sheep range, the coarser grasses get a-head, and the flocks will suffer considerably before they will feed upon it.

The large tracts of maiden down which within a few years have been reduced to the lowest stage of exhaustion

tion and sterility, from the short-sighted policy and ever-to-be-lamented practice of paring, burning, and destroying, their native green sward, have contributed in a most alarming degree to the diminution of sheep in such parts of this District. Were it possible to cultivate rape, or any species of green crop upon these exhausted lands, and upon which the stock might depasture without appropriating the ordinary resources of in-field manure for raising such crops, the evil would in some degree admit of mitigation, and a larger proportion of the former sheep stock of the occupation would not only yield a correspondent profit as stock, but by their folding, contribute in a more extensive degree to the renovation and improvement of the ancient tillage lands. These advantages, however, are greatly abridged in the cases here alluded to, and the evils attendant upon them not only operates in a two-fold degree, but at the same time without the least shadow of relief or remedy.

A very general opinion prevails throughout the chalk district, that unless the larger farms can have water-meadow at one end, and a maiden down at the other, or at least some sort of permanent grass land, it is utterly impossible for such farms to be conducted to advantage, and as they should be: hence the incalculable injury resulting to estates, not only from the breaking up of old down land, but by paring and burning, utterly despoiling it of all its fruitful energies. This operation is performed at an average expense of 30*s.* per acre; but the burnt lands, even where there is a much stronger staple than may well be expected in the lands here spoken of, are uniformly found to refuse nourishment to clover for the first five years after they have been so treated, in which case ray-grass and trefoil becomes its substitute for temporary pasture. In the Isle of Wight, the practice of paring and burning (if not unknown) is universally rejected, it being found far more advisable to open a piece of old lay ground for oats, and afterwards winter and summer-fallow it for wheat, or early turnips to be fed off and succeeded by wheat, than improvidently to destroy those energies that are found necessary for the purpose of permanent fertility.

Water-Meadows.—"This country is particularly famous for water-meadows, which are extremely productive, and generally very well managed. The farmers seem aware of the great advantages arising from them, as in many instances they are at considerable expense in purchasing a supply of water, besides the first expense, which is from five to six pounds per acre, exclusive of the continual repairs of the sluices, &c. They are usually shut up in November or beginning of December, and are watered alternately every other week till the beginning of March, when they are fed for about five or six weeks with ewes and lambs, and one acre will carry four or five couple, which are frequently taken in at from 6*d*. to 8*d*. per couple per week, and the water turned on as before until they are fit to be mowed, when, in general, they produce from two to three loads per acre, and are frequently cut twice in a season.

"In the course of our Survey we observed many instances where water might be caught from the hills or roads, and turned on the adjoining lands with great advantage, which in some measure would answer the purpose of water-meadows, as the water falling therefrom, carries with it a considerable portion of vegetable salts." So far have Messrs. Abraham and William Driver judiciously remarked upon this important subject, and to which the Surveyor will farther take leave to add what has been said by an Annotator on these Gentlemen's Survey. "As the forming of water-meadows must ever be regarded as a permanent improvement, this expense should always be incurred by the landlord, who never fails to double the value of his property by it;" an opinion the Surveyor can have no scruple in giving his fullest assent to, before he proceeds to state what occurred to his notice on this very interesting subject, in the progress of his Survey.

After smoothing and levelling the inequalities occasioned by the depasturing cattle upon the late aftermath, the main carriages and all smaller conductors of the water are cleansed and scoured out in time to receive the first flooding, which takes place about the middle of November: this is performed in regular steps or sections, and is continued for six or eight days at a time, taking care to have the water kept in continual motion, and thus alternately flowing the whole extent of the meadow: this watering is repeated as frequently as possible during the continuance of winter, and sometimes till the middle of March, when an acre of water-meadow (the common run of the country) is considered equal to the feeding of 400 couples for one day. Another acre is given the following day, when it is no less pleasing to observe the improvement which takes place in the lambs, than in the closeness and fineness of the pile of grass which shoots up afterwards.

These meadows, when lying on a sound dry bottom, are regularly hurdled off, leaving open hurdles for the lambs to pass through and feed on a-head. The couples are seldom suffered to remain on the water-meadows all night; but as the weather, or other circumstances may point out, are folded upon the winter fallows, lay, or stubble grounds. The usual hours of keeping them on the meadows, are from eight o'clock in the morning till six in the evening, and this generally continues from the last week in March till the first week in May, both inclusive.

As soon as the first shoot of the water-meadows is thus taken off by the ewes and lambs, the carriages and lateral conductors of the water are examined and righted, and the watering is renewed each section of the meadow in the manner before noticed, but not requiring more than two, or at farthest three days at a time, and in about seven or eight weeks from the time the couples were removed, the hay crop is grown, and becomes fit for mowing; the watering being frequently repeated during the greater part of this period, and till within eight or ten days of the mowers going into the meadow.

The cutting of the grass young, and in full sap, is indispensable for preserving its nourishing qualities. This observation, however, equally applies to the cutting of all grass for hay; but which the nature of the spontaneous grasses in the upland meadows, and where the grasses have not been uniformly and suddenly impelled by irrigation, totally deprives of advantages connected with its practice. A much greater uniformity of growth must always be found in the grass of water-meadows than in that of dry ones. If attention is paid to the proper stage of growth when the watered grass should be cut, and that it is done before any, even the earliest grasses, form their seed, there remains little doubt, should the hay be afterwards well saved, of its nutritious quality.

In most upland meadows, the early grasses have not only formed, but many of them have shed their seed, whilst the farmer is waiting for the pile or bottom to grow, and become a little stronger. The obvious consequence is, that all such plants and grasses as may have perfected their growth and shed their seed, their stems and foliage are reduced to the state and condition of meer straw, and possess an inviting quality superior to it, only, by what may have been absorbed from the younger grasses whilst heating together in the stack. It is therefore much to be desired, that such a series of experiments should be made on the best of the native grasses of this country, as may lead to the making of such selections for the different soils destined for permanent meadow, as would vegetate and come to maturity at the same time.

The uniformity in the growth of sainfoin, lucern, clover, and hay, made of tares or vetches, goes very far in constituting their respective excellence; and who has ever seen such hay when equally well got, rejected, or not eaten up much cleaner, by oxen, cows, sheep, or horses, than even upland meadow-hay, which after being culled of its sweetest mouthfuls, is often blown upon by the animals, and totally rejected? The Timothy, or cat's-tail grass, which in the United States of America is exclusively cultivated for permanent meadow, grows with extraordinary luxuriance in that country; but there, it is always mown when its head is in early blossom; and however strong and apparently coarse the seed stems may be, they are seldom refused, but more generally eaten up clean by the cows, horses, and sheep, of that country. But to return from a digression, which nearly in spite of the Surveyor, has thus spread itself before him.

These water-meadows are sometimes, but rarely, laid up for a second crop. They are more frequently fed, after the second summer-watering, with grazing or store cattle; but when depastured by milch-cows, the increase of the dairy produce from such a fresh and succulent herbage, is represented to be very considerable, and that without abating in any respect of its high land pasture quality. The meadows are commonly thus fed till preparation is making or nearly completed for the winter flowing, and which, as before observed, appears to be much later than in Devonshire, where a large proportion of *catch-work* water-meadow, are made, to take place about the middle of November.

An opinion seems much to have prevailed, that water-meadows are safe at all seasons for depasturing ewes and lambs; but for young store sheep and wethers, in the spring of the year only. This opinion seems rather founded on assumed notions, than facts deduced from experience; for the opinion itself is accompanied with a most glaring contradiction, when it is farther admitted, that in all cases the rot will be communicated to sheep, let their age or sex be what it may, if they feed upon watered-meadows after the summer or autumnal flooding. Ewes and lambs, or couples as they are called, are then no more; the fact therefore of their depasturing water-meadows at that season, can never have been tried; and the first flow of the watered grass in the spring of the year, is far too valuable to be given to young stores or wethers. How then can the fact be proved, that spring feeding the water-meadows is safe for sheep without lambs, and which is never done, and that autumnal feeding would not prove at all injurious to couples, the lambs of which are always long before weaned, and separated from the ewes? The first part of this position is however admitted in its fullest extent, but the latter remains totally unsupported, and whenever tried, would most probably be found to terminate most fatally in error.

The cause of this malady, in the humble conception of the Author of this Report, arises wholly and exclusively from what the summer watering is either capable of generating, or of bringing down upon, and thus fouling the herbage. In support of this opinion, which hitherto remains uncontroverted, the Surveyor will presume to transcribe his obvervations on this subject, as submitted for the consideration of the Honourable Board about fourteen years ago, in the Agricultural Report he then drew up of the County of Cambridge, page 206, 207.

"This part of the county is very happily exempt from the ravages of the *rot;* the cause of which, so far as the enquiries and observations made in the course of the Survey will warrant a conjecture, seems to arise from an extremely wet season in summer. *Extremely wet winters do not produce the disease.* The moors, low grounds, and wastes, in the open common-fields, upon which the sheep are by necessity forced to feed, as well in wet as in dry summers, frequently in wet seasons become overflowed with water from the higher ground. These descending from extensive tracts of tillage land, leave prodigious quantities of filth and sullage upon the grass and herbage, in which is most probably involved the germin or egg of those flukes or insects, which being conveyed by the food into the stomach of the sheep, and there meeting their proper nidus, become vivified, and invited by the gall, their proper aliment pass through the bile ducts into the liver, where, in a certain stage of the disease, they increase to the frightful size and number which destroy the animal.

"Another species of rot was, however, noticed upon the Survey, which does not appear ascribable to the same cause. This is called by the farmers the *blood-rot*. The appearance of the liver in these cases is that of being swollen, yet perfectly sound, as in the most healthy animal. On a close examination it will, however, be found covered with an extremely thin transparent membrane, and which the smallest pressure imaginable immediately ruptures, when the whole liver resembles a mass of coagulated blood, without any cohesion whatsoever. The liver and intestines at this time are free from any appearance of insects, alive or dead, nor was it understood from the farmers, that the liver in this state was anywise offensive to the smell, though certain it is, that in its progress to that condition, it must have been rendered gradually corrupt as it became disorganized."

That a wet layer does not produce this disease is clear, from its never having yet appeared on the extensive moors and commons of the forests of Dartmoor and of Exmoor, and where the water rises in every foot-track of the sheep throughout the year. The cause of the disease must therefore be looked for in the soiled condition of the herbage upon which the sheep may feed; and this being clearly shewn to occur only in particular places, and at a certain season of the year, little difficulty can arise in preventing at least, if not in curing the evil.

We will once more return to the subject of water-meadows, in the formation of which there appears to be two material points for consideration: the one an uncontrouled command of a constant living stream; the other an indispensable necessity of effectually draining the ground to be irrigated, of all its native and redundant waters. A dry, sound, and consequently warm bottom, is inseparably connected with the success of this improvement. This accomplished, the nature of the soil is not so material, as that it possesses a free and open substratum, which will always favour an early vegetation; and the plants and grasses that may form its herbage, will always accord with the nature of the soil and the water employed in its irrigation, and which upon a long run, it will be utterly impossible to alter or controul. Many plants there are which form the surface of water-meadows, and are then rendered succulent and valuable, but which upon the high and drier grounds, would form the greatest pest to tillage lands, where they would be altogether rejected as trumpery, and no pains would be spared to effect their extermination.

Admitting these meadows to be properly drained, and then laid out with a constant and regular supply of water, the eddits, stop-gates, sluices, carriages, lateral branches, and every thing (ridge-work excepted) considered, the expense cannot be well estimated at a less average than 5*l.* per acre. This premised, the water-meadow account, on a fair average, through most of the vallies in this county, may be stated per acre as follow.

The

The Water-Meadow Dr. to Expenses.

	£.	s.	d.
To interest of money expended in forming the water-meadow,	0	5	0
Keeping sluices, stop-gates, weirs, &c. in repair,	0	7	6
Scouring the principal carriages, trimming and cleansing out the smaller branches smoothing, levelling, and righting, the surface of the meadow, preparatory to its receiving the winter watering,	0	5	0
Trimming and cleansing out all the conducting branches after the spring-feeding,	0	0	6
Ditto ditto after the hay-crop,	0	0	6
Mowing,	0	4	0
Making,	0	4	6
Carting and stacking,	0	8	0
Thatching,	0	3	6
Rent,	2	10	0
Tithes on a rack-rent, commutation for the whole occupation, as before,	0	12	6
Parochial assessments, as before,	0	15	0
Hurdles for penning off and dividing the meadow, with expense of removal,	0	2	6
Total expense per acre per ann.	£.5	18	6
Net profit per acre per ann. for the purposes before-mentioned,	3	4	10
	£.9	3	4

Per Contra Cr. by Produce.

	£.	s.	d.
By agistment of 400 couples for one day, at *7d.* per couple weekly, ...	1	13	4
30 cwt. of hay, at *3s. 3d.* per cwt.	4	17	6
Value of second crop and after-grass, until shut up for watering in November,	2	12	6
Total value of produce per acre per ann.	£.9	3	4

Hence there appears to be a profit of *3l. 4s. 10d.* per acre per ann. exclusive of the eventual benefit the meadow may have afforded by folding on the tillage or other uplands 400 couples for one night, and which, according to the foregoing statement, taking the 400 couples at 600 sheep only, and that the teathe of 3600 is equal in value to a dressing of home or town dung that shall cost *5l.*, amounts to about *16s. 8d.* more. These advantages have been admitted, and are stated under the correction of gentlemen of candour, intelligence, and respectability. Yet an opinion is strongly cherished among them, that the hay and after-grass of the water-meadows (let the meadows be ever so well managed, and their produce equally well saved) do not contain that feeding or fattening quality which is known to appertain to grass voluntarily produced upon an equally well drained, and in other respects similarly circumstanced soil, but without the aid or stimulus brought on by irrigation. Cattle or horses, they contend, feeding upon the hay, or pastured upon the after-grass of watered ground, will generally hold their own, or, in other words, keep to the condition they were in when put to such food: they will grow or increase in size, but not in condition, from such fodder or pasturage. Ample however are the benefits resulting from irrigation, even though its produce may not possess a feeding or grazing quality.

A great deal of the low grounds in the neighbourhood of Winchester, lie so very flat as to render them, without ridging, altogether unfit for the purpose of irrigation; was this mode resorted to, it would most probably be found to answer extremely well. The great flat, however, lying on the upper and north side of the city, is by no means of so kindly a nature as the low grounds upon the Itchen lying south of the city: here an extensive and valuable range of water-meadows are found to continue through Twyford and Otterbourne, towards Bishop's Stoke. The same mode of managing these meadows is observed as before noticed. They are uniformly found to afford a more valuable produce when it is forced by irrigation upon a dry bottom, than where the bottom consists of a moor, or in any respect partakes of a peaty nature. Some of these meadows have been thrown into ridge-work, but where a uniform inclination can be obtained, corresponding with the natural hang of the ground, it is always preferred; and this is found most generally to be the case upon the soundest land.

The land reclaimed and converted into water-meadow by Mr. Patrick, of Petersfield, consisted chiefly of a black moory soil, on a deep stratum of white and yellow clay, below which a loose vein of white sand and gravel occurs, and which is found to rest finally upon a sand rock impervious to water. The clay stratum next below the soil being perforated, water was always found to rise through the augur holes, but no increase of water was discovered by piercing the sand rock.

After completely effecting the drainage of this land, the steps pursued by Mr. Patrick to reclaim the coarse moory surface, and form it into water-meadow, may not be altogether unworthy of some attention. This surface was in many places extremely uneven, and which, in order to bring to a uniform bearing, corresponding with the eddit and other water-works, was found necessary to lower in some places and fill up in others; in doing this, it would often happen that a knoll or eminence to be reduced, or a hollow to be filled up, contained a valuable patch of green sward: this point determined, such surfaces were stripped into lengths (with the common breast or paring shovel, but cut somewhat thicker than if intended for burning) of two feet and a half in length by one foot in width, carefully observing that they did not remain longer than 24 hours rolled or folded up, and which labour for the paring operation only cost *9d.* per rod.

The hollow filled up, or the hill reduced to an uniform level with the other parts of the field, the green sward was again laid down, carefully closing the joints, rolling it with a stone roller, and the water being brought gently over it as soon as possible, occasioned an immediate union with the green sward, the roots of which, assisted by the water, struck directly into the loose floor previously prepared for them, and in the course of the ensuing summer (supposing the work to be completed by the 1st of May) a full swarth is always to be reckoned upon by the first week in July following; and here it must farther be observed, that by this ans a vast improvement takes place in the herbage the sodded ground, and in which the finer grasses or some length of time have always been observed to preserve a considerable ascendancy.

The water is generally found to ride very high in the Teste and Itchen rivers, yet in many places it is stated but rarely to overflow the adjacent meadows, and when such inundations have happened, the effect has not been marked with any peculiar advantages, unless when the inundation has suddenly subsided.

Some water-meadows in the vallies of the Teste and Itchen, are supplied with the overflow from the Barge river and the canal, but as this resource is uncertain, little advantage can be expected to be derived from it: this water, however, being conveyed immediately from the adjacent hills and cultivated lands, its fructifying qualities are esteemed superior to that of the river water; and hence a striking lesson may be learnt, of the great value and importance of catch-water works, and irrigating (if it is only occasionally) from the overflow of the surrounding hills.

The water being much pent up for the use of the mills in the Stour and Avon rivers, is found greatly to inconvenience the adjacent lands. The herbage of some of the low grounds above and below Fordingbridge, is of a coarse and rushy nature, often encumbered with a dwarf growth of alder, the latter of little value but for the occasional repair of fences. The part of these low grounds called the moor, and others of a similar quality, seem best calculated for burning into peat-ashes, and subsequent conversion into osier beds. Although a large part of the level on both sides the Avon above Fordingbridge, is employed as water-meadow

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still the herbage it produces is of so coarse and sedgy a nature, as to be of very little use unless it is particularly well saved.

In the parishes of Ibberley and Ellingham there is a large extent of common meadow, called Harbridge Meadow, subject to inundation by the winter floods, but which are not stated to communicate the like fertility experienced from such causes in many other parts of these united kingdoms; a circumstance, considering the pure calcareous quality of the water, that can only be accounted for from the porous and springy nature of the ground, and the great height (generally for milling purposes) at which the water rides, and is kept constantly penned up along the course of this river—an evil of the very first magnitude in almost every stream in the county, and crying loudly for relief.

Such parts of these vallies as lie above the soakage, from the streams passing through them, not artificially watered, but subject to occasional overflowings, are stated, as before noticed, to be much benefited if the inundation suddenly subsides; at the same time it must be remarked, that there are some of these low grounds, by the pressure of the water from above, that are only accessible for the summer months, and between the end of March and beginning of November.

The natural grass lands through the whole extent of these districts, have not appeared to possess any particular excellence in their quality or management, beyond what has been already stated. Some tracts of embanked marshes would have been brought forward to the advantage of husbandry, had they not been conceived to be more valuably appropriated as saltings for the manufacture of sea-salt. Many of these works are now abandoned, but the salt and bitumen have so thoroughly saturated the soil of these ancient salt-pans, that ages must pass away before any thing like fertility can be expected from them. In cases where the determination of the proprietor is not to renew such works, the only measure, in the opinion of the Surveyor, that would be likely to hasten the return of fertility to such lands, is that of ploughing their whole surface a good full pitch, and covering it a foot or eighteen inches with fresh water; this in some cases might be repeated until the object was attained, but in others it is rendered absolutely impracticable, from there not being any fresh water stream capable of being conducted to them; such, therefore, must be surrendered to the great maturer of all things, time, in a long succession of ages.

The meadows and grass lands lying generally south of the New Forest, the Forest of Bere, and Waltham Chase, unless in gentlemen's demesnes, or where they have been much forced with town manure, are generally of an inferior quality to much of the tillage land. A dark coloured sand and gravelly loam prevails through all the grass lands bordering on the salt marshes; and although the herbage afforded by these grounds is in a superior degree to that produced upon the grass lands bordering on the forests, yet the sand and sharp gravel often mixed with the mould, occasions it much to fall off during a continuance of dry weather. Where the clay or marl stratum occurs, though not so early in the spring, the vegetation is less liable to be checked by a dry spell of weather. The lower part of Beauly manor abutting upon the coast, contains a valuable tract of marsh land, but a late breach in the bank, near Black Water Gate, has materially injured this property. These marshes are stated as equal to the grazing of steers of ten score per quarter during the summer run; but as other stock is generally depastured with them, the extent of ground required to produce a specific quantity of beef, was not ascertained. Feeding steers or oxen of this size, have been generally thought to lay on upon these pastures during the summer season about 2½ score per quarter, or increase upon the whole animal to the amount of about 2cwt.

Were more attention paid to the draining of the stiff lands in the south-western parts of the Isle of Wight, a very sweet and valuable herbage might be obtained upon such strong brown loams: this is made evident by what appears in many places where this sort of land has been properly hollow-drained. The herbage generally produced on the free grist or quarry land, is of a sweet and tender nature, but liable to much injury from a continuance of drought in summer.

The green sward on the southern side of the island, in the parishes of Brook, Motteston, Brixton, part of Shorwell, and generally through the Vale of Arreton, being formed upon a red loamy sand and gravel, is found to possess a rich and very fattening quality, and far less liable to injury from the summer's drought than the herbage of the quarry land. Upon the pastures above Newport of this description, on the Medina river, and on some of the principal branches of the Brading river, a number of sheep are commonly fattened, and also of steers during the summer season, that will weigh from ten to twelve score per quarter.

The embanked marshes of Brading and Yaverland, afford a valuable tract of rich feeding land. Mr. Smith, who occupies a large part of the latter parish, has effected a very great improvement on some of the coarser marshes, by hollow-draining in the first instance, and afterwards cutting the rush hassocks smooth to the very quick about an inch below the surface, and through the crown of the plants. This is done with an old hay knife fixed into a longer handle, and with this instrument the operation is performed more effectually than by any paring, however closely done, with a scythe. After the hassocks are a little withered, they are brought into the straw-yard, and there made to contribute a proportion to the increase of the dung-heap. The burning of vegetable matter that in any reasonable time can be made to rot, has not yet crept into the practice of any of the most enlightened and respectable occupiers in this island: among whom there are many that ought not to give place for general information in rural concerns to most farmers in these united kingdoms.

It will readily be supposed that this island affords but few situations for water-meadows: the short distance which the rivulets and brooks head into the country, must necessarily prove a bar to improvements of this nature, unless in a few cases of catch-work, and even these on a narrow and very small scale.

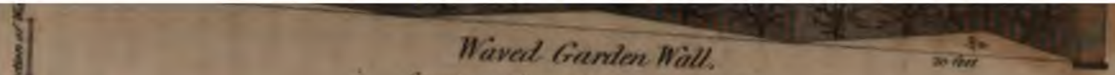
CHAP. IX.

GARDENS AND ORCHARDS.

GARDENING is carried on to a considerable extent in the neighbourhood of all the large towns, but Portsea Island is supposed to produce the finest brocoli in the kindom: the gardens within a convenient distance of Gosport and Portsmouth are in other respects well stored with legumes, and afford a large and constant supply for the demand these towns always have for them, but particularly so in time of war. The amusement and exercise accompanying gardening, exclusive of the comforts and advantages it affords to all families within its compass, is very justly valued by all the rural, and many of the town inhabitants in this county.

The gardens belonging to the nobility and gentry are for the most part enclosed with brick walls; but where cob or mud has been resorted to, it seems much approved of, and is thought to answer extremely well. The coping required for these walls is generally of straw, and neatly placed on in the form of thatch. This is conceived in some measure to preserve the young fruit and blossoms from the severity of the frost, and is thus recommended as affording a more certain crop of fruit, which ripens as early, and is equally well flavoured, as that upon stone or brick-walls.

When cob is made of pounded chalk or the malmy



Waved Garden Wall,

forming a Curve of two Inches in 20 Feet

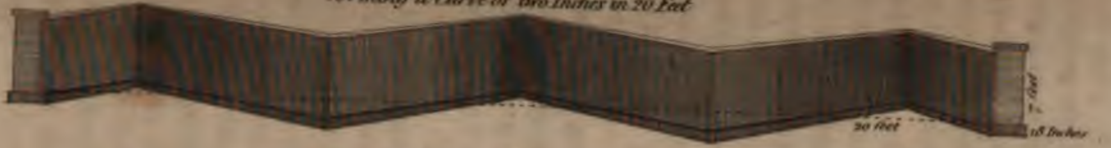
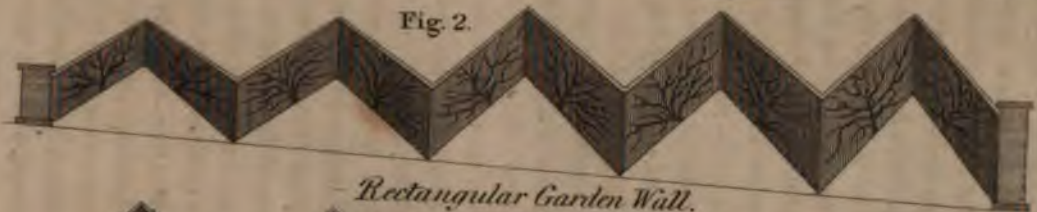
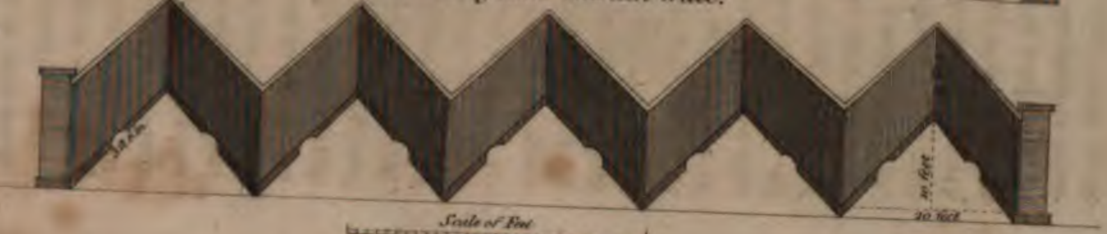


Fig. 2.



Rectangular Garden Wall.



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Neele sc 352 Strand

The expense which Mr. St. Barbe, near Lymington, has incurred in building a very neat red brick wall of a waving character, and with a divergency only of 11 inches on a base of 22 feet, carried half a brick thick to the height of six feet and a half above the foundation, which latter is formed of a nine-inch wall, and 18 inches high, amounts, on a wall 75 yards in length, to about 50*l.* (including materials and workmanship in that neighbourhood), equal to about 3*l.* 12*s.* per perch, running, but not reduced measure, and which expense also includes the piers at the doors and gates-way, which are four, built two feet and an half square, and to the height of the wall, six feet and an half, as before-mentioned.

In other cases, garden-walls are projected on the principle of a running right-angled triangle; that is to say, on the centre of a base of 20 feet, a perpendicular or departure is set off, of 10 feet to every angular point of the wall, which is then built straight from the end of the base line to that of the perpendicular, in length about 15 feet, and thus ranging at right angles with each other, the whole length of the wall. (Vide *Plate* XIII. *Fig.* 2.) In the centre of each section of the wall there is an under-ground arch formed in the foundation of the wall, three feet six inches wide, to admit the roots of the fruit trees to pass under the wall to the trenched ground on the other side; at the depth of about two feet from the surface, and at the seat of the trees, a close pavement of tiles is made, about three or four feet square, to prevent the tap-roots of the trees from descending into any wet hungry loam, or other unfriendly subsoil, upon which the garden may have been necessarily laid out.

The price of building a garden-wall of this description

tion at Boscombe-cottage, on Pool heath, near Christchurch, was 1*l.* 15*s.* 6*d.* per rod reduced square measure. The structure of this wall is as follows: foundation two bricks and an half thick, continued four courses high; the arches above-mentioned measured as solid work; the next four courses are eighteen inches in thickness: the next three feet six inches in height, is one brick and an half thick, and the superstructure four feet six inches in height, is built a nine-inch wall.

As four thousand five hundred bricks will always make a square of 15½ feet, one and an half brick thick, and as a quarter of lime may generally be calculated for a thousand bricks, it will be no difficult matter at any time to ascertain the expense of constructing such a wall: the price of bricks, tiles, and carriage, being previously known, and which, on a general computation, will rarely be found at the kiln to exceed 35*s* per 1000.

Boscombe-cottage is situated directly on the edge of the sand hills which form the high bluff termination of Pool-heath, upon the English Channel. Little sheltered from the fury of the sea winds, beyond what is afforded by some recent plantations of fir and other evergreens, its garden exhibited in the course of the last summer an infinitely greater abundance of choice fruit, than was any where else observed by the Surveyor, in the many spacious and elegant gardens he had an opportunity of visiting in the course of the journey. At this cottage every thing is kept in the highest preservation and order, and with little apparent expense and trouble. The work was well done in the first instance, and it is done for ever. Under the direction of Mr. Norris, the present worthy and respectable possessor, there is little doubt of any thing being neglected that may in any wise contribute to the general improvement of the country, or serve to adorn this truly interesting spot.

Orchards.—In the woodland, chalk, or malmy districts, very few apples are attempted to be raised beyond what is necessary for kitchen use. The chalky character composing so large a proportion of these districts, seems by no means adapted for orchard ground on a large scale. Upon the marl or clay bottom lands in the south and south-western parts of the county, orchards were more generally observed, and from which a few families were in the practice of making two or three hogsheads of cider annually; but this appeared no where to be an object of much concern among the rural inhabitants. In the Isle of Wight it is somewhat different; for although the orchard ground even there is of no considerable extent, there are but few farmers who do not make from two to six hogsheads of cider annually. It is made chiefly for home use; but its excellent quality (principally derived from the strong brown loams upon which the greater part of the orchards are cultivated) often carries it to so high a price, as to form a powerful temptation with many of the farmers for selling certain parts of their annual produce to their northern neighbours, by whom it is in much demand and held in high estimation.

In the early part of the summer, a white downy substance was observed on many of the apple trees, in which was enveloped a small red insect, and it was usually known by the term of the cotton blight. As the summer advanced it gradually disappeared, but not without leaving a cankered effect upon the limbs which it covered, and which by stopping the circulation of the sap, produces much mischief, and finally the destruction of all such branches. The Lombardy poplar has been charged with having contributed to the propagation, if not to the originating, of this disease; but close and particular observation in the course of the Survey, rather contradicted than supported the opinion, and in no case more strongly than in the garden and orchard of Mr. Clewer, of Botley. These are nearly surrounded with a remarkably towering growth of the Turin poplar, but which during the highest prevalence of the disease, had not communicated the smallest appearance whatever of the blight in question to the trees below, and which were not only particularly clean, and healthy in their growth, but so far as could be then judged, promised to yield a most abundant crop of apples.

In the early part of the season the same appearance was noticed in the Isle of Wight. In the months of August and September its traces were evident, but the blight itself had vanished, with all apprehensions from the minds of the persons with whom the Surveyor had an opportunity of conversing on the subject. That it paduces the effect above noticed, by the insects eating and corroding the bark, is manifest in innumerable instances; but how and when the germin of this blight is received or propagated, have not yet been ascertained, but which perhaps discovered, might lead to the means of defeating its progress in future. The north-easterly winds are found to contribute generally to the production of blights and animalculæ which prey upon fruits and vegetation in the early part of summer; but whether the blight in question is wafted from abroad during the prevalence of those winds, or that the disease is generated at home by transient and local peculiarities in our climate, are questions more curious than useful, and altogether inapplicable to the intention of this Report.

CHAP. X.

WOODS AND PLANTATIONS.

A CORRECT account of the present circumstances of the county, with respect to its woods and plantations, could not well fail of affording some interest to readers in general of these Reports; but to individuals more immediately concerned in rural affairs, and connected as these subjects are with our future maritime strength, and the consequent independence of the empire, such enquiries must prove particularly interesting to the public at large.

The present state of the woodlands shall be as fully and as particularly noticed, as it has lain within the power of the Surveyor to obtain account of; and whatever may have occurred on this examination, as a means of improving the products of the county, in this as well as in other points not necessarily noticed before, will be duly considered in the concluding Chapter of this Report, which will be found to treat of the means of improvement in general, and the measures which, in the judgment of the Surveyor, are best calculated for that purpose. Following the order prescribed for these Reports by the Honourable Board, he proceeds in the first place to take a view of the

Coppice Woods—A species of produce that is found much to vary in its quality and value, as the predominance of timber may have affected its growth, or the ground producing it may be of a warm and dry, or of a cold and springy nature.

Birch, withy, alder, hazel, wild cherry, ash, and sometimes oak, are found the most prevailing and most profitable coppice-woods, and whether strictly in that sense, as undergrowth in the timber woodlands, or forming the broad irregular hedge-rows so frequently occurring in many parts of the county.

The age of cutting coppice, or rather undergrowth, in the woodland district, whether in hand, or in the occupation of the tenant to the adjacent farm, varies from eight to ten years growth, and which may be stated to yield, standing at those respective ages, a net profit equal to an annual rent of from 10*s*. to 25*s*. per acre.

Some new plantations of ash, birch, and withy, on the demesne of Stratfield Saye, have at nine years growth been recently sold standing for 25*l*., 27*l*., and even 30*l*. per acre; these prices have mostly been obtained after the third cutting, and when the young coppice had not exceeded the age of 30 years from the time of planting, and before any young timber had been got up in it. The first cutting of a young coppice (supposed properly adapted to soil and situation) is at two years' growth, and which will then about bear out the expense of cutting; at five years again from this time the cutting is renewed, and at eight or ten years after. By this time the stools are stated to have attained their greatest forcing power; their shoots to rise with the greatest vigour and luxuriance; and produce the most profitable growth in a period of nine or ten years. From this time the coppices are found gradually to diminish in value, which in part may be

referred

referred to the natural decay then taking place in the old stools, and to the overshadowing of the timber usually preserved in them.

When the young ash coppices are suffered to stand for 18 or 20 years, many of them attain a corresponding length in feet, and are then sold for barge poles. These will commonly measure about two feet and a half of solid wood, and this is found to be a very profitable application of all the most luxuriant shoots of ash coppice-wood.

As oak timber will always be found to rise spontaneously in all coppices, particularly such as are formed upon a stratum of yellow woodland, or common oak-tree clay, on cutting down these coppices, the young heirs or saplings of the most promising growth are always carefully preserved, as well as many young samplers from former oak-stools. These latter are often preserved through two or three successive periods, and though not with a view ultimately for navy or ship timber, are often made the substitute for far more valuable timber that would be prematurely felled or cut down for repairs.

Coppice-wood is frequently cut down at 1½*d.* the square pole; hop-poles and hoop-rods will cost trimming and laying by 4*d.* per 100; hurdle-rods 2*d.* per 100; cutting out hedge or hurdle stakes 2*d.* per dozen; splitting poles and shaving hoops, middlings, thirteen feet long, 2*s.* per 100; long pipes, twelve feet long, 1*s.* 6*d.* per 100; short pipes, ten feet and a half long, 1*s.* 4*d.* per 100; hogsheads nine feet and a half, barrels eight feet and a half, and kilderkins seven feet and a half, 1*s.* per 100; cutting and binding faggots four feet long, 1*s.* 8*d.* per 100; bavins or brushwood faggots,

gots, from 16*d*. to 18*d*. per 100; rods or wattling for hedges, 2½*d*. per 100; procuring withes for binding faggots 2*d*. per 100.

In selecting rafter poles of ash, beech, wytch hazel, withy, or wild cherry, each pole counts in labour according to their size for bavins. Wood money in lieu of a faggot each day to the workmen, 1½*d*. upon every shilling the work comes to; beer money 3*s*. per load, and which load consists of 30 bundles, containing 100 hoops each, as the wood or length of them may run.

The ordinary value of this produce in the woods may be thus stated: wattled hurdles, with a single shore or stake to each, 8*s*. 6*d*. per dozen; middling pipe hoops 14*l*. per load; long pipe hoops 13*l*.; short pipe hoops 11*l*. 10*s*.; hogsheads, barrels, and kilderkins, about 10*l*. per load. Rafter poles vary in their value according to their size, a standard pole being three inches diameter at the butt, and twelve feet long, value 1*s*., and so in proportion. Bavins and faggots from 20*s*. to 25*s*. per long hundred.

Grubbing coppices or hedge-rows 4*d*. per square pole for breaking ground, and 5*s*. per cord (*i. e.* a double cube of four feet) upon the roots grubbed; their value varies from 10*s*. to 16*s*. per cord. Cutting stack or coal wood 20*d*. per cord.

In the chalk district the coppice-wood consists chiefly of hazel, withy, oak, ash, maple, white-thorn, some little beech, and wild cherry. This is seldom cut earlier than at fourteen years growth, and commonly sells, standing at that age, for nine guineas or 10*l*. per acre. A number of oak heirs and ash tillows are left at each cutting; the latter are either continued through a third period, or cut down the subsequent fall for the demand then for them. The wattled hurdles made in these woods, are found to be far more durable than those made of the same materials in the woodland district, where the coppices are generally converted much in the manner just noticed, and allowing for difference of carriage to navigation or market, with much the same profit to the woodman; but what the average of such profits may be, it is extremely difficult to ascertain, as from the very nature of the produce it must ever be subject to a number of contingent charges, that will more or less affect the net proceeds of of each individual acre.

The coppice in the southern parts of the county growing upon a clay or marl bottom, is usually cut down at nine years growth: it consists chiefly of hazel, withy, alder, birch, and some ash. Much of this wood is used as small hoops for the four gallon tubs, formerly, and at present not wholly out of demand, along the coasts of this and the adjacent counties, and still sent in large quantities to the islands of Jersey and Guernsey. A number of straight hoops are also exported in bundles to the West Indies. These coppices are estimated to average about 14*s*. net annual rent per acre.

There are some coppices lying south of the Forest of Bere, that are cut down at various ages from eight to fourteen years growth, and which are commonly estimated to yield a rent of 15*s*. and 20*s*. per acre.

The undergrowth and coppice-wood cut once in about ten years in the country along the Southampton and other waters, discharging through the south-western parts of the county, consist also of hasel, birch, withy, alder, beech, and some wild cherry: it differs in no respect in its management from what has been before noticed, but to which one general observation may be made as applicable to the whole, and that is, the little attention which at times appears to be paid to the exclusion of cattle; and hence those numerous breaks and interruptions so frequently occurring in the growth of the coppice and underwood of the country, but which in general, it must also be confessed, is still in much better preservation than in some other districts with which the Surveyor is acquainted in the united kingdom.

This observation must however admit of still farther exception, as it may respect the Isle of Wight, and where coppices with little reserved timber in them, at ten years' growth, are often sold standing at 2*s*. the square lugg or perch, and consequently at the rate of 16*l*. per acre. The underwood in the north-eastern part of the island being greatly overshaded by a heavy growth of timber, will seldom at the same age fetch more than 8*l*. per acre.

A much larger proportion of coppice-land seems progressively bringing into tillage in this part of the island, than in any other part noticed within the county. The ordinary expense of grubbing is 7*s*. per cord, in which are included timber stocks, stools and roots, or moors, of every description. The roots being commonly sold upon the spot at 5*s*. per cord, a loss of 2*s*. per cord is thus sustained in the performance of this labour, clearing the ground, and making it ready for the plough.

A very plain and easy remedy appears to be at hand for supplying the deficiency of the ash plants in all coppices, and this consists in selecting some of the finest stools at the time of cutting, and plashing shoots from them in the vacant spaces, and turfing such shoots over at proper distances. By these means, the ash plants in the hedge mounds of Devonshire have been continued from time immemorial, and are still in high vigour; for at all the turfed places along the pole, roots will strike downwards, and shoots will ascend, forming altogether new plants, and which, from the nourishment derived from the parent stock, generally grow and get forward in a most surprising manner. As the decay however of the parent stump is liable to be conveyed to the young plants, though not by the roots, as elsewhere observed in the case of elm propagated by suckers (Vide Devon Report), yet as the decay from the parent stock will always appear to have ascended to a certain, but perhaps at that age not to a materially detrimental height in the young poles, it may still be advisable, as soon as the young stocks may have become thoroughly established with good and sufficient roots, to sever them from the parent stock, as also from each other.

Beech and other Woods.—In almost every part of the chalk district, beech woods, and groves of this timber, seem to grow and flourish with peculiar vigour. The forests and other woodlands are also found to contain large proportions of this species, and which when standing single, grow to a considerable size. Though the beech woods are very promising in every part of the chalk district, those at Ditcham Grove appear to be the best, and by far the most extensive. This timber is chiefly of the white sort, and which from being regularly thinned from the first planting (and which never ought to exceed a yard square) have now arrived to a very towering, clean, and regular growth. When this timber averages about 25 feet meetings, or half a load per tree, it makes good plank timber, and will then be worth in the woods from 18*d.* to 20*d.* per foot. The forest beech however seldom exceeds in value 15*d.* per foot; 10*d.* may be taken more generally as its average, where felled.

The finest *ash* noticed any where upon the Survey, was in Hackwood-park. The late noble, and justly lamented owner of this demesne, informed the Surveyor, that he had recently sold some of the prime shafts of the Hackwood ash for 4*s.* 6*d.* per foot. This was understood to have been purchased by the London coachmakers. The price of this timber, destined to the more ordinary uses of wheelwrights in the county, will be found to fluctuate between 2*s.* 6*d.* and 3*s.* per foot.

Elm—In this county is generally of scarce growth. In the park, however, of Stratfield Saye, there is an avenue of those trees, which are perhaps the finest in the kingdom. On other demesnes scattered through the county, and particularly in the country south of the forests, and of the Buckholt and Houghton Hills, some very good trees will be occasionally seen, as also in the islands of Haling and Portsea, upon the borders of Southampton water, and towards the south-eastern extremity of the Isle of Wight. These, according to their size, and the uses to which they can be applied, sell from 15*d.* to 3*s.* 6*d.* per foot. The largest are much in demand for keel-pieces in the Royal Dock Yard, and are still more valuable. The smaller, and more irregular growths, are in much demand for tackle-blocks, naves of wheels, boards, and packing-cases. Upon these prices, however, allowance is to be made for the transport of the timber, whenever its carriage to market exceeds from 5*s.* to 7*s.* 6*d.* per load. This wood appears not to suffer in any material degree from the sea winds, as in many very exposed situations they were observed to grow straight and regular, and seemed less liable to recede from the westerly gales than oak and other timber.

In many situations, where they have had room for spreading, the Dutch, broad-leaved elm, or wytch hazel, grow with much grandeur and luxuriance.

The abele and aspen poplar flourish in many parts of the county. Their plank is used in common with beech for weather-boarding, and may generally be considered of nearly equal value. They are all very liable to warp, unless well secured upon the buildings, and being of a soft and woolly texture, are difficult to plane and work smooth for inside work. When well seasoned, and properly secured as lining, they are found to answer very well. Their value in place where felled, from *10d.* to *15d.* per foot.

The lime and linden tree have formerly been much cultivated near the residence of country gentlemen, merely for shade and a little ornament, in the villages and market-towns, but the *Turin or Lombardy poplar*, from novelty, and the astonishing quickness of its growth, seems in a manner to have excluded of late years these trees from many such domestic and ornamental situations. The only use hitherto made of the wood of the Turin poplar, is that of its conversion into chips for making of hats.

Sycamore, a strong and hardy wood, was not observed so frequently in this county as farther to the westward. Its value for turning use may be ranked with the maple, the lime, and linden tree, but the quantity of either species produced for market is so very small, as to leave them altogether without a price.

There is more or less *alder* growing in most of the coppices as underwood, but few trees only were noticed or heard of upon the Survey, of a size sufficient to include them in the class of timber.

The flourishing condition of the *larch* can no where be more clearly seen than in the specimens produced upon the demesne of Stratfield Saye. The thrifty growth of this tree may be fairly judged of from its usual appearance in the gentlemen's parks and plantations through the county, but no where it is presumed in a much higher degree than in those made by Mr. Wade, of Pucknell, where at 18 years' growth, the larch appears to have attained at five feet from the ground, a girth of near four feet, and a height estimated between 40 and 50 feet.

Some remarkably fine cedars of Lebanon were noticed on the demesne of Exbury-house, where also were observed some very fine silver Scotch and pineaster fir. A part of the ripest of this growth has lately been made use of for scantling and flooring-plank, and proves a most excellent substitute for the Norway timber, in the new house now building by Colonel Mitford; but the most extraordinary specimen of

Scotch and silver fir, particularly the latter, which any where occurred to the notice of the Surveyor, were those at Poulton-park, and which towering to the height of 120 feet, preserve a cleanness of shaft, and general vigour of growth, equally rare as it is interesting to view.

Plantations first on Peat Moss.—There are but few of the vallies and low grounds in this country that do not afford a greater or less quantity of peat moss. In the valley between Stockbridge and Rumsey, and in other places where the peat is cut with the short spade, the land is made good again for water or for dry meads,

or

The young nursery plants cost about 20*d*. per 100, planting about 4½*d*. per score, and at the rate of about 4*l*. 10*s*. per acre. The land upon which these plantations are formed, is not estimated at the very highest at more than 7*s*. 6*d*. per acre.

At seven years' growth these plantations are pruned by cutting off all their lower branches. The bavins thus produced, with the subsequent thinnings for the next seven years, very amply repay the rent, and all expences that may have accrued upon the plantations at fourteen years' growth; up to which time, about one-half of the value of the bavins and poles procured by thinning, are supposed to be consumed in the labour of cutting, binding, and bringing them to the drives and carriage-ways through the wood. The number of growing trees stated per acre at this period, is about 3000, which being all of the prime growth of the wood, are estimated standing, at 6*d*. per stick, or equal to about 75*l*. per acre.

The success attending the plantations at Boscombe-cottage, situated, as before described, at the side of the sand hills upon Pool-heath, affords the fullest encouragement for attempting the culture of such trees in almost every situation, however much exposed to the violence of the sea winds. The mode pursued by Mr. Norris is this:—the young plants are procured at the nurseries at two and three years old, and are planted on the common heath ground, at the average distance of four feet one inch and a half square, requiring 16 plants for every square lugg or perch of ground, and consequently, 2560 to each acre. These plants cost upon an average 12*s*. per 1000. The soil on which they are placed partakes very much of a rank sand, cast up and accumulated at different periods from the sea-shore.

The Scotch fir and pineaster seem generally to take the lead, though there are many other species of the pine and fir tribe (the spruce excepted) which seem to be doing very well. Larch, with some other deciduous and hard wood trees, have been planted by Mr. Norris, but these are always found to suffer considerably, unless protected by a curtain of evergreens as soon as they reach the level of the top of the down or sand hills, and become exposed to the sweeping and searing gales from the ocean. In situations of this nature, which appear to be so very much exposed, it is recommended that the young plantation should attain the age of fourteen or fifteen years, before any pruning or thinning takes place, when about one-third of the less promising trees may be removed.

Some very extensive plantations of fir, beech, larch, oak, sweet chesnut, &c. have been lately made by Mr. Jenkinson, of Beech-house, upon the commons of Christchurch abutting upon the New Forest, and which appear to be doing extremely well. Mr. Jenkinson finds a very great advantage in giving the seedling plants a year's training in a rich piece of nursery ground. In this situation the young plants put forth a large bunch of fibrous roots, which enables them afterwards, in their exposed situation, to collect a sufficiency of nourishment from the loose mould in the holes upon the heath in which they are planted, to ensure a certainty of their striking through it, and afterwards growing with vigour. The plants before noticed, intermixed with many others, are put in at the distance of four feet a-part, among the long ling and heather. This protects them in their early growth; and in high and exposed situations accounts for the few plants that appear to have missed in those extensive plantations.

The expense of digging the holes is about 5*s.* per 1000; and 2*s.* 6*d.* per 1000 more, plants the young trees, and leaves them perfectly secure.

The seedling plants of the fir and pine tribe cost, upon an average, about 6*s.* per 1000; those of the deciduous trees, about double that price; and as the expense of planting is the same, it may not be improper to remark, that exertions of this nature in a country abounding with such extensive wastes, many of which are almost exclusively proper for such an appropriation, are worthy of imitation in their fullest extent, as well from the benefit that must eventually result to the future owners of such improvements, as of their importance generally, and to the public at large.

The soil being admirably adapted for the culture of the sweet chesnut, Mr. Jenkinson spares no pains in raising as many of them as possible in the ancient woodlands of his estate, and indeed in every situation in which he thinks it may be at all likely that this long lost, but truly valuable tree, may come to maturity.

The system pursued, and the expenses incurred, by other gentlemen in the county, in the culture of trees appropriate to their respective situations, is presumed to be equally proper and deserving notice; but the Surveyor not having the good fortune to obtain the necessary information when he visited the plantations of Lord Malmesbury, Mr. Heathcote, and other gentlemen in the county, deprives him of the satisfaction of noticing any thing that might prove particularly interesting in the detail of such improvements.

With regard to exotic plantations, Mr. Cobbett has been most particularly fortunate in raising, chiefly from seed, a vast nursery of almost all the different sorts of forest trees known on the Atlantic side of the middle states in North America. The vast variety of strong and flourishing plants which his seed-bed of oaks exhibited in the course of the last summer, bids fair to render his success on this occasion of much importance to our country. The shell bark and common hiccory, the honey and common locust, black and white walnut, ash, elm, sassafras catalpa, and a prodigious variety of other trees and shrubs, with which he has furnished his garden and nursery ground at Botley, and chiefly from America, is no less grateful and amusing to himself, than he will have it in his power hereafter to oblige his friends, and thus contribute in a very high degree to the future decoration and improvement of the country.

It has been particularly remarked by many improvers in this county, that whenever the Scotch fir has been raised upon land favourable to the growth of oak, that it has always been found to answer the purpose of an excellent nurse or precursor to that timber. To this end, the extensive fir plantations of Mr. Sloane, upon Wigley Common, have all, on the stronger land, been planted proportionably thin, to admit both a voluntary and cultivated growth of oak trees.

Oak Timber.—In that part of the county which, in this Report, is called the Woodlands, a very fine growth of oak may generally be observed. The chalk district also is by no means destitute in many places of a highly ornamental and valuable proportion of oak woods. The more southern parts of the county, and the forests in particular, have formerly yielded an abundance of this valuable timber, but which of late years have suffered a great diminution in their annual produce. Wherever the oak tree, or yellow woodland clay, exists, its presence is more or less indicated by a spontaneous growth of oak wood. In all such situations this timber may be cultivated to advantage; but where the natural soil of the oak tree does not occur, it is as idle to attempt its cultivation, as to divert the laws of Nature in any other respect, by restraining it from bringing forth its more indigenous productions, and which would prove equally necessary and appropriate for the use of man.

When the average meetings of 25 or 30 oak trees will equal as many feet each, they may be estimated at 3*s*. per foot, or 7*l*. 10*s*. per load; but as the meetings may increase or diminish from this standard, the timber will bear a corresponding price also. Well proportioned oak timber, with a stock allowing a length of 14 or 16 feet of plank, will readily command 12 guineas per load, or about 5*s*. per foot; such trees measuring from two and a half to three loads each, are extremely valuable for Navy plank. Timber of the same meetings, but not calculated for plank, will be worth from 9*l*. to 10*l*. per load standing value, and in all cases sinking the bark, and so much of the top as may not reach to timber measure.

The expense of cutting and tying lop or top faggots four feet long with a single band, is 6*d*. per score, but (in the wood) much varying in their value from 10*s*. to 25*s*. per 100. The fire or coal-wood, in the forests and southern parts of the county, is sold by the fathom piled up, and formed of different dimensions. The colliers' wood for charring, is five feet six inches on the ground, four feet six inches high, and the wood is cut in length about two feet eight inches, containing 66 cubic feet. The market wood is piled in fathoms five feet upon the ground, four feet high, and the wood cut the same length as for charring, containing $53\frac{1}{3}$ cubic feet. This also varies greatly in its price from 5*s*. to 7*s*. 6*d*. per fathom.

In thinning oak timber, it is material, and by most woodmen usually attended to, not to let the remaining trees stand too naked; for in that case a number of young shoots are put forth from the stems of the reserved trees, and which always proves unfavourable to their future growth and value. Another point is also much and necessarily attended to, and that is, to have the young timber as nearly as possible of an equal standing, both as to age and vigour.

There are various ways of setting the bark in this county, although the one most general is, to cut it into lengths of three feet, and this piled close: 50 yards long is called a load, and costs, stripping stock and top branches to one inch in diameter, 10*s*. per load. The average price of these rhinds, at the pole, last year, was from three guineas to 3*l*. 10*s*. per load, and which, when reduced to hatch-bark, are commonly estimated to weigh 7 cwt. It requires seven times this quantity to make a load of hatch or prepared bark ready for grinding, and which is always supposed to weigh 50 cwt. The proportion between the bark in its rhind or hatch, is as 25 to 20; and to take the common growth of oak felled on private estates, the bark of the stem and the top branches is estimated at one-fourth value of the tree.

Mr. Chute, one of the present worthy representatives of this county in Parliament, has lately tried the value of elm bark, as a substitute for that of oak, in the London market, and which, when the oak bark brought 26*l*. per load of hatch, the hatched elm bark was purchased for about 12*l.* per load; and in this view its tanning antiseptic qualities may be considered in reference to oak bark. The present extraordinary price of oak bark has induced Mr. Chute to have more elm peeled upon its being lately felled. Some question however arises as to the propriety of this practice, whether the bark upon the elm in its round state, is not essential to the gradual seasoning of the timber, and whether removing it in a green state, does not, in fact, subject the wood to a far greater injury, than the value of the bark would cover, after stripping and preparing it for market.

The result of some observations collected on the Survey, as to the relative growth of wood in this county, taking the whole at ten years' growth, and fixing oak as a standard at 10, ash will be 18, elm 16, beech 20, and arbele or the aspen wood 30.

In many parts of the woodlands in this county, oaks were estimated to measure from two and an half to three loads each, with proportionate tops, and still appearing in a growing state. Colonel Cunnynghame has oaks upon his estate at Malshanger, that are estimated to measure three loads each, and for which he has thought proper to decline 35 guineas per tree. By far the most promising and thrifty growth of oak were however observed upon the demesne of Poulton-park, and which character seemed strongly to mark the growth of the oak woods at Dibden, and thence mixed with some very fine elm on both sides of the Southampton river.

It would certainly appear invidious to remark particularly on the management of individuals respecting their coppice and timber woodlands; but in many parts of the county a very large proportion of ripe timber appeared to be annually decreasing in its value; in other places a premature destruction had evidenly taken place; and in general, due attention does not appear to be paid to the preservation of the coppice and young woodlands, and to the raising of young trees, in the place of such timber as may have been removed, whether ripe or otherwise.

Waltham Chase, Hambleton Forest, Havant Thicket, all belong to the Church of Winchester. In the first, the greater part of the timber is cut down with little or no reservation of young trees. The same may be said of Hambleton Forest, where the ripe timber has been removed, without securing any regular growth to succeed it. Piper's-hill, which is of some considerable extent, has been enclosed, the young wood protected, and which, as far as it goes, promises a valuable supply in future. Havant Thicket appears to have been more judiciously attended to, as the old timber only has been cut down, and a regular and flourishing young growth is now rising to succeed it.

So many reports and publications are already extant, on the government and present management of the royal forests in this, as well as in other parts of England, and those being specially made, and founded upon documents altogether out of the reach of the Author of this Report, are much more accurate in detail, more full and satisfactory, than any representation drawn from opinions and statements collected by the way, from persons under impressions of zeal, for maintaining their present establishment, or anxious for an eventual benefit, upon a future and different appropriation of these domains. Under these circumstances, the Surveyor must hope for the indulgence of the Honourable Board, if he suspends for the present, any farther discussion of this very important subject, but with a view only of obtaining all the farther information he has so earnestly solicited, and which he is desirous of adverting to in the last and concluding Chapter of this Report, when all such considerations as may have occurred in the progress of his journey, will be duly noticed, touching the means of a more just and advantageous appropriation of certain parts of all the waste lands and forests in the kingdom.

Before concluding this Chapter, it may be proper to observe, that in the parish of Dogmersfield considerable attention has been bestowed on the cultivation of ash plantations, and with great success. The mode adopted is as follows:—the soil, which is generally a moist sand, is first trenched about eighteen inches deep, and thrown up in beds of about six feet wide. The land intended for planting being thus prepared, the plants are introduced in rows, an ash plant of three years old, and one of red-hearted withy, in each hill, and two of these rows are planted in each bed, at about four feet distance from each other, the plants being cut off within two inches of the surface. As soon as the planting is finished, the land is allotted in parcels of about half an acre each, to different poor families, with an express condition that only one row of potatoes should be set between each row of ash and withy. This condition is rigidly enforced, as it has been found, in some instances, that the plantations have suffered by the insertion of too many potatoes, which, if set too near the ash, will draw from them the nourishment of the soil.

From this method of management, a double advantage has been found to arise, namely, that by the frequent moving the soil, which is necessary to the cultivation of potatoes, much benefit has been afforded to the growth of the plantations, and the poor family, by whom these allotments of land have been cultivated at their leisure hours, have, on an average, got near 150 bushels of potatoes annually, at the expense only of seed and labour. In about three years the ash and withy shade the ground sufficiently to keep down all weeds, and to render the farther growth of potatoes impracticable.

When these plantations are about seven years old, it is customary to cut down the withy and a considerable part of the ash, leaving only those which are straight and healthy, and likely to become timber trees. The plants so cut off, shoot again immediately with the greatest vigour, and become extremely valuable for hop-poles, hoops, &c. &c. for two or three cuttings, till the trees left for timber gradually overshadow and destroy them. Sir Henry Mildmay has now a plantation of only ten years' growth from the first planting, under this process, where the underwood is extremely flourishing, and the timber seven or eight and twenty feet high, measuring near sixteen inches in circumference at the base.

The expense of this management is calculated at about 10*l*. an acre, including the plants, in the first instance, after which there are no farther outgoings. In the first cutting, at the expiration of six or seven years, a considerable number of bavins are produced, and afterwards the hop-poles, &c. will yield at the rate of 2*l*. an acre annually. They are cut the second time at about ten years growth, and it is to be observed, that the land in its original state cannot be computed at more than 12*s*. or 14*s*. an acre. Considering the increased and increasing demand for ash timber, it

can scarcely be doubted that by no means of cul
tion hitherto known, lands of this quality can be tu
to so profitable an account, and especially in the
nity of the districts which produce hops. Much
in Hampshire is admirably adapted to this man
ment.

CHAP. XI.

WASTES.

WHETHER we consider the wastes and unproductive parts of this county in a national point of view, or merely as they relate to the interest which individuals at present may have *in* them, or discourse *of* them in relation to both, certain it is, that in a Report of this nature, the consideration of the wastes of the country must form one of its most principal subjects; for the present, however, the Surveyor must be permitted to confine his attention to the description of their nature and suitable appropriation generally, as appeared on the Survey, reserving, as before noticed, whatever may be submitted as the means for effecting such improvement, to the last and concluding Chapter of this Report.

Though it must appear in a manner impossible, to describe all the shades of variety which occur in the soil and substrata of a country so much diversified as in those respects is the county before us, yet the Surveyor, as far as may have come within his view, will endeavour to point out their most prominent distinctions, in what they seem most essentially to differ from each other, and the purposes for which they seem by nature to be the most applicable.

The wet, hungry, sandy loam, upon similar subsoil, forms to a considerable extent the heaths, commons, and unproductive parts of the wastes and forests in this county. Its voluntary produce consists chiefly of a dwarf species of ling, with coarse aquatic grasses, coming late in the spring, and of very little value. After a close hollow-draining, and rendering these grounds perfectly sound and dry, they would receive chalk to admiration, and be afterwards capable of conversion into good fair grass and tillage lands.

A dry sand and gravelly mould formed of the earth of vegetables, lying upon harsh strata of sand and gravel, producing a stronger growth of ling or heather, and a dwarf species of furze.—This soil might be most advantageously improved by the application of argillaceous or calcareous marl, under which circumstances it might also be very usefully employed in a system of up and down husbandry: by a due and constant attention to the culture of green crops upon land of this description, it might be brought nearly to sustain itself in good condition by the consumption of its own produce. The turnip and barley husbandry would form the leading feature in its future appropriation.

A black moory soil, a few inches in depth, lying upon a blue, brown, and yellow clay, veined with an ochre of iron, and usually much charged with water, produces rushes, carnation-grass, dwarf alder, and a variety of coarse aquatic plants and grasses, and is only to be reclaimed, or brought into a profitable state, by close hollow-draining, and where the turf soughing mode would prove peculiarly convenient and applicable. This previous improvement effected, and the land completely relieved of its redundant water, a clean full chalking would work an incalculable improvement upon such lands; when after the staple has been meliorated by two or three years tillage, it might either be laid down for permanent pasture, or proving, from the nature of the subsoil, of too strong and stubborn a quality for such purpose, might be advantageously employed in the culture of beans, grey pease, tares, clover, wheat, and oats. Much of the green crops might be advantageously consumed upon the premises, and by which means such lands might be annually recruited and their fertility sustained.

A light brown and greyish coloured loam, on a brown and yellow clay, much impregnated with an oxyde of iron, producing in addition to its native oak, a luxuriant growth of furze and fern, and occasionally veined with strata of sand and gravel.—The moisture conducted through, or over this land, being completely carried off, or prevented from coming on, by the system of Elkington, such land would derive considerable advantage from chalking, when it might be advantageously employed in the common tillage culture of the country, to which with great propriety may be added hemp and flax.

A mild sand and gravelly loam of a greyish colour upon an open subsoil, producing a moderate growth of fern, but this very generally, and amongst it an herbage particularly sweet and inviting to deer, sheep, cows, and horses. The application of the calcareous and argillaceous marls upon this land would work in it a very considerable improvement, when wheat, white and blue pease, barley, and every species of green crop, including the occasional occurrence of hemp and flax, might here be cultivated to very great advantage.

Upon all these classes of waste (the two last only excepted), the operation next to be pursued after draining, is paring and burning, and for the obvious purpose of destroying that ancient and unprofitable covering,

ing, which in no reasonable time can be expected to be made to rot.

In those parts of the county which bind south of the New Forest, and in the Isle of Wight, the substrata of most of these classes become veined with a reddish, brown, blue, and white calcareous shell and argillaceous marl, offering at one and the same time, the strongest incitement, and most certain reward, which the bounty of Providence could hold forth to the spirit, skill, and industry of the inhabitants.

It may be remarked through the whole extent of this country, that there are none, or at least very little, of that description of wastes which in Devonshire are called moors, all of which, in a greater or less degree, bear evident marks of a former cultivation, and which are appurtenant to particular estates, many having the sites of their former meets and bounds still traceable, and (for which though rent is paid) are pastured in common, and according to the usage of such places, by the occupiers of such estates, and in a sort of joint tenancy: of this description of waste or intercommonable land, there did not appear to be any deserving of particular notice in this county.

The wastes in general through the county, whether forest, or heath and commons belonging to particular parishes, present generally two distinct rights to the inhabitants of their vicinage; one, the right of common of pasture, which is the right of taking the verdure or herbage of such wastes by the mouths of cattle; the other, common of turbary, which is the right to pare turf from the surface of those lands, or dig in or upon them peat for fuel.

In regard to the royal forests, neither of these rights are exercised, without some trifling consideration being paid by the persons claiming, both as to the right of turbary and pasturage for cattle.

The parochial commons lie open, in general, to an unrestrained exercise of these rights by all who reside within their respective perambulations; but this, from the great overstock by which the commons are generally crowded during the summer season, produces little or no substantial benefit to those who claim and exercise it. The right of turbary in many cases has led to so shameful a deterioration of the surface of some of the more valuable wastes in the county, as seems loudly to call for its being in future regulated by some restraining authority; an evil which in no way can be so wisely and effectually cured, as by placing such intercommonable lands in a state of severalty, and consequently commuting such rights by apportioning land in lieu of them.

In every Report the Surveyor has had the honour to prepare under the direction of the Board of Agriculture, he has had much reason to lament the want of such necessary information, as would have enabled him to state with some degree of accuracy the number of acres of waste or proportionably unproductive land in the district then before him: he has the same deficiency of information to lament on the present occasion. About 14 years ago, Messrs. Drivers stated the total quantity of waste lands in the county of Hants, exclusive of the forests, but including 5675 acres in the Isle of Wight, at 104,845 acres. The Surveyor has no reason to dissent at this time from the accuracy of this statement, beyond the enclosures which within that period may have taken place, and are at present carrying forward in the county, and which may fairly be presumed to have included some of the most improvable tracts which at that time were lying open and in a state of intercommonage. Any estimate, therefore, of the improved value of such estates, from any measures which hereafter he may have the honour to suggest, must be in reference to the existing wastes, in comparison with cultivated land under similar circumstances of soil, &c. in their vicinity.

There being neither mountains, bogs, or fens, properly so called, in this county, the object for farther examination in this Chapter, is the present state and extent of salt marshes, or rather large tracts of sea mud. These occur upon the inlets, and along the southern shores of the county, and in the Isle of Wight; and although they are not generally raised to the highest level of the common spring tides, and consequently not covered with the herbage peculiar to salt marshes which may have attained that height of perfection (from the deposition of silt and sediment made upon them by the land and tidal waters, and in the manner formerly explained by the Surveyor on this subject*), yet in many places the surface of these banks of mud assume a sufficient degree of richness, from the mild hazel-coloured loam of which they are composed, to justify trials on a small scale to embank and improve them.

A long range of mud or salt marsh, on the west side of the Southampton river, extends through the parish of Fawley: this is subject to be slightly covered during the top of the ordinary neap tides; but from its superior height above the level of the present embanked marshes, and the annual growth of long marsh grass and samphire it affords, seems likely to answer a valuable purpose, if embanked from the sea; by which means a double purpose would be answered—a considerable tract of valuable land would be obtained, and the descent of the tidal and land waters, being confined to the navigable channel of the Southampton river, would produce a more effectual scour in the bed of that river, than can possibly be expected from the loose and circuitous course they now take in wandering through the sands; and a straighter channel, with deeper water, would be brought nearer to the town and harbour of that port.

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* Vide Cambridgeshire, Essex, and Devon Reports.

The flood making, before the Surveyor had an opportunity of being more particular in his examination of this river, prevented him from ascertaining the extent of this, and a like tract of marsh land lying between Calshot Castle and the saltings of Fawley, as also of other tracts equally promising higher up the Southampton river; the whole, however, may be fairly estimated at about 2000 acres. The rivers of Beauley and Lymington, and the harbour of Christchurch, present objects for similar improvement, and which, judiciously carried into execution, could not well fail of improving the navigation of such places. The frontage acquisition of marsh land would not only prove highly beneficial to the abutting estates, but at the same time add considerably to the national stock.

About 4000 acres of this description of mud are found along shore between Hurst Castle and the mouth of Beauley river. In the inlet or harbour of Portsmouth there are about 3000 acres, and the harbour of Langston and Emsworth, taking only so much of the latter as lies within the county of Hants, will amount to 5500 acres, all of which are nearly dry by the first quarter's ebb, and consequently the tidal waters can adventurers in that line, I shall extract from Sir Richard Worsley's History of the Isle of Wight.

"A grant of Brading haven was obtained from King James the First by Gibbs, a groom of the bedchamber. The owners of the adjoining lands contested this grant, which the King was very earnest in supporting. After a verdict obtained in the Court of Exchequer against the gentlemen of the island, Gibbs sold his share for 2000*l.* to Sir Bevis Thelwall, a page of the king's bed-chamber, who admitted the famous Sir Hugh Middleton to a share. They employed a number of Dutchmen to enclose and recover the haven from the sea. The first taking of it in cost 4000*l.* and 1000*l.* more were expended in building a dwelling-house, barn, water-mill, trenching, quick-setting, and other necessary works; so that, including the original purchase, the total expenditure amounted to 7000*l.* But after all, the nature of the ground did not answer the expectation of the undertakers; for though that part of it adjoining Brading proved tolerably good, nearly one-half of it was found to be a light running sand; nevertheless, an incontestible evidence appeared, by the discovery of a well cased with stone near the middle of the haven, that it had formerly been good ground. Sir Hugh Middleton tried a variety of experiments on the land which had been taken in, before he sold his share; sowing it with wheat, barley, oats, cabbage, and finally with rapeseed; which last was alone successful: but the greatest discouragement was, that the sea brought up so much ouze, weeds, and sand, which choaked up the passage for the discharge of the fresh water. At length, in a wet season, when the inner part of the haven was

fully

full of fresh water and a high spring tide, the waters met under the bank, and made a breach. Thus ended this expensive project; and though Sir John Oglander, who lived in the neighbourhood, confesses himself a friend to the undertaking, which, besides its principal object, tended to render that part of the country more healthy, he declares it as his opinion, that the scheme can never be resumed to any profitable purpose.

"Sir Bevis Thelwall and his heirs laboured to ascribe this accident to other causes, in order to preserve their claims, and recover compensation for their losses; but the whole affair died away, and the sea still overflows the haven.

"The ill success of Sir Bevis Thelwall and Sir Hugh Middleton, seems sufficient to deter any future projector from risking so large a sum as would be necessary to recover Brading haven from the sea, on a speculation that has already turned out so disadvantageously; but should any gentleman be bold enough to attempt its embankment, he would do well to pay every attention to the mode adopted by the late Count Bentinck, for shutting out the sea on his Norfolk estate, who has showed an example almost unique in this kingdom, of laudable spirit, unconquered perseverance, sound judgment, and consummate skill, in adding to his property upwards of one thousand acres, formerly overwhelmed by the ocean."

The mud in this haven appears to lie generally upon a much higher level than the plain of those embanked marshes which bind upon and lie westward from it, and situate in the parishes of Brading and Yaverland. The whole extent of this flat or valley, appears to have been formerly accessible to the tidal waters, and which seem to have insulated the present promontory of Yaverland, but afterwards brought in continuation with the coast of Sand-down Bay, by a vast bank of shingle, which has been cast up by the sea, and upon which the fort or castle of Sand-down is situated.

CHAP. XII.

IMPROVEMENTS.

SECT. I.—DRAINING.

THE improvements which appear to have been carried on most successfully, and to the greatest extent, on Mr. Elkington's principles in this county, are those at Cadland-park, under the direction of Mr. Elkington, but in conjunction with Mr. Mundy, the intelligent tenant and steward of Mr. Drummond, on that much improved and truly interesting demesne.

The benefits resulting from these works have chiefly depended on the lay of the strata, which dipping at a very small angle from the horizon, has enabled the principles of this mode of draining to be carried into execution with the fullest effect. The internal structure of this park is formed by intermediate layers of loam, brick-earth, sand, gravel, clay, &c. with little or no continuation of rock. Though loose and detached fragments frequently occurred in the direction, the drains were carried, and which were cut at various depths, and filled in with wood, stones, or soughing-bricks, covered over, the ground made good again, and level with the surface. The whole has been attended with considerable expense, but the effect that has been produced from them upon the land, most amply compensates, besides the additional ornament accompanying an improvement upon land previously not worth 5s. raised to the annual value of 40s. per acre.

Mr. Budden has also bestowed much pains in draining a part of his estate, lying in the parish of Hordel, on the same principles, and with equal success, but also at an expense that has been very considerable. This gentleman remarks, that great care should always be taken in clearing away all aquatic plants, willow in particular, from the direction the covered drains may take, as the roots of all such plants will follow the loosened strata to any depth; nor will they stop until they reach the pipe or passage through which the water is conveyed; here meeting a constant supply of fresh aliment, the fibrous roots expand through all the cavities among the stones, or penetrating the joints of the soughing-tiles, increase their lateral shoots so far as to occasion the drain to blow up, and thus to become far much worse than useless.

The necessity of a close hollow-draining to all the malmy lands, can no where be more clearly shewn, than in the case of a single under-drain stretching directly across a field now (July 1807) under wheat, belonging to Mr. Seward, of Burriton. This drain exactly corresponds with the direction of the eight-feet ridges, and the corn over it, through the whole length of the field, is superior to the adjoining ridges, by a proportion of at least from five to six bushels per acre; a superiority that has been uniformly indicated during the whole progress of its growth, since the end of February last.

A great deal of land in the neighbourhood of Rumsey has been much relieved by hollow-drains; these have generally been made three spit, or about 27 inches deep, 15 inches wide at top, and about four inches at bottom: they are filled to about mid-way with stones gathered from the adjacent fields, afterwards covered with heath, to prevent the loose mould from washing or crumbling in among the stones; all expenses included, these drains will cost about 1*s*. 6*d*. per rod, and if properly executed, will continue in effective operation for many years.

The improvements before noticed at Petersfield, have certainly been conducted by Mr. Patrick to the end in view, and that in a very masterly manner. The drains are necessarily of various depths and sizes, and cost, for cutting and filling in, only from 1*s*. to 5*s*. per perch. To this must be added the expense of the soughing-tiles, which being about 15 to each statute perch of drain, and at the kiln 3*s*. per dozen. Whenever it has been found necessary to carry any of these drains through a body or stratum of peat, and which, to preserve a continuation of level, will sometimes happen, the soughing-tiles are supported on the bottom of the drain by flat tiles laid close together; and thus the edges of the soughing-tiles are prevented from sinking with the incumbent weight of earth returned into the drains. The bottom of the drains carried through the clay or gravelly strata, being firm and compact, renders the use of the flat tiles altogether unnecessary. The water rising in the auger-holes bored in the bottom of the drains carried through the clay stratum, always appears of the same quality, winter and summer, thence indicating that it always proceeds from the same source or fountain.

There is much open and covered draining performed in the Isle of Wight, as well for the purpose of cutting off the springs in the gravelly and porous substrata,

strata, as for relieving the more stubborn wet lands of their redundant moisture. The former of these drains must necessarily vary very much in their dimensions, but the latter, which are commonly three spit or 24 inches deep, with a width of 15 inches at top, and tapering down to six or seven at bottom, cost for digging and filling in, only about 8*d.* per perch. The materials used for the latter purpose are chalk flints, and other stones most conveniently procured, and making the whole expense of such drains, when filled with stones about one-half of their depth, about 15*d.* per perch.

Mr. Smith, of Languard farm, by a judicious plan of under-ground draining, has reclaimed a large tract of low peaty meadows, which being convenient to the homestead, are rendered still more valuable. Part of these drains have been filled with shore gravel, collected about the size of a hen's egg; other parts filled in with furze or brushwood, and the pipes of others left hollow, and turf-soughed. This gentleman finds it necessary to compress the loose moory soil upon the turf, as well as upon the wood drains, by ramming. The shingle drains do not seem to require it. These drains are generally made from 12 to 15 inches wide at top, 30 inches deep, and about three inches and an half wide at the bottom. The digging, and filling about 15 inches with shingle, lightly covering with wheat-straw, and returning the earth into the drains in the loose sand and gravelly soil, costs 7*d.* per rod. These drains, well executed with a gentle and regular descent, will continue working for ever.

The drains made in the peaty meadows are about the same depth, but left from eight to 10 inches wide at bottom, filled in with faggots made to fit the trench, and placed obliquely with their butts downwards, lapping about half way over each other: these faggots are likewise covered with wheat-straw, upon which the moory soil is rammed hard down, and the drain finished by neatly replacing the surface sods first taken out. The digging costs $3\frac{1}{4}d.$ per rod; cutting and making faggots 2s. per 100, requiring about 10 faggots to each perch, worth about 9*d.*, or 7*s.* 6*d.* per 100; filling, ramming, and replacing the turf, about $1\frac{1}{2}d.$ per perch more; in all about 1*s.* 2*d.* per perch for the whole expense.

The hollow or turf drains are made 24 inches deep, one foot wide at top, sloping below the shoulder to two and an half or three inches in width at bottom; the turfs are inverted upon the shoulders formed by taking up the last or grove spit with the land ditch-spade. These being cut through a strong tough clay or loam, properly executed, will cost on an average about 6*d.* per perch, and will keep drawing to the full and complete relief of the land for an incredible length of years.

There are other gentlemen, besides many of the most spirited and improving tenantry of the country, that begin to see the necessity of attending more fully to this first and most important of all considerations in the outset of improvements requiring to be conducted upon springy, as well as the stiffer, wet, cold, and clayey lands. The whole of the country, however, generally speaking, under these circumstances, has hitherto, and to a most extraordinary degree, been neglected in these particulars.

SECT. II.—PARING AND BURNING,

WHICH under the circumstances, and to the extent it has been carried on in the downy parts of this county, can never be admitted by the Surveyor in a Chapter which purports to treat exclusively of Improvements. Did the plan which has been prescribed for this Report by the Honourable Board, include a chapter on deterioration, and the baneful practices of a misguided people, the *indiscriminate* practice of paring and burning sound dry land, already clothed and teeming with a sweet inviting herbage, would prove the most prominent feature in details the most injurious and permanently destructive of all others to the agricultural interests of the country. On the other hand, where paring and burning is proper, there is no practice the Surveyor has ever been more earnest to recommend, or in his individual capacity been more prompt to follow; and these situations (though frequently before repeated) he conceives (after effectual draining) to be upon all fen, bog, morass, and moory lands, as also for the purpose of subduing the ancient covering of heaths, commons, and all other lands, the soil and substrata of which are of a peaty quality, or consisting of a black moor or vegetable mould of four or five inches only in substance, lying on a bed or stratum of clay. Previous and effectual draining in all these cases is indispensable; but that work accomplished, and the coarse, unprofitable, and otherwise indestructible covering once destroyed, it must be a miserable system of management indeed, however ably advocated, that will admit of such lands returning again to their primitive state, and for the sole purpose of supplying, *as is strangely contended*, a farther portion of combustible matter to admit and require that the paring and burning should be repeated.

A large extent of wastes and commons in the parish of Christchurch, comprising a part of Mr. Jenkinson's estate at Beech-house, has been, as before observed, very judiciously appropriated to planting. The heath land which this gentleman has brought into a course of tillage, appears to have attained to a very high and promising state of fertility, and without resorting, but in cases of absolute necessity, to the practice of paring and burning.

The native character of soil through the greater part of these improvements, is that of a light sand and gravelly loam, on a deep bed of dry red and white gravel, but in which there are frequently found deep strata of argillaceous and calcareous marl, lying sometimes apart, but more generally mixed together. This marl is found in the largest quantities upon the commons bordering on the New Forest, is brought by Mr. Jenkinson the average distance of a mile, and applied at the rate of twelve waggon loads, equalling about 40 tons per acre. Without dung, or any manure of a direct and feeding quality, this marling will be found in the sequel to cost very little short of *5l.* per acre.

The effect this dressing produces after it has become thoroughly incorporated with the top-mould, is truly astonishing. It gives that consistence to the soil so much required on all such lands, and by supplying proportions of the two primary earths of which such soil is deficient, affords every thing which in such a case can be expected from a mere alterative manure.

Owing to the long continuance of dry weather, the turnips upon Beech-house farm will be late; but they promise to be by far the best noticed for a considerable distance round. They are cultivated on two-furrow ridges, one row on each, and in the manner of the Cumberland or Scotch practice, well hoed, and otherwise properly attended to.

The system of management hitherto pursued by Mr. Jenkinson, has been that of cultivating repeated green crops on the new heath land, with occasional crops of rye, until the marl, which he uniformly dresses these lands with, becomes intimately mixed and incorporated with the surface mould: that done, the land is thrown into a regular course of green and white straw crops, and by which treatment every advantage of its now improved condition is capable of affording, may with great reason be expected; and in continuation from it; a very fine crop of rye (the only one noticed in the county) was carting in the neighbourhood of Beech-house; when the Surveyor was employed on his examination of this quarter, the part of the rye field which was cleared, was ploughing for stubble turnips, and which, with the self sown rye, was expected to come forward in the spring of the year, an opportune season for the ewes and lambs.

The marl within, and upon the margin of the New Forest, extends through many of the parishes southwardly and towards Lymington, where it occurs in large quantities, and generally found to lie in the following order: first the blue, then the white, and that which lies the deepest, of a brownish red and sometimes purple colour. The blue is considered slow in its operation, but a strong durable marl, and particularly applicable for soils of a sand and gravelly nature. The white or shell marl is quick in its operation, and equally efficacious on the light sand and gravelly, as upon the stronger loams; but unless it is applied in over large quantities upon the strong clay lands, its virtues are considered to be of shorter duration. The red is found to work better in the clay land than the blue; but although the operation of these species is not so sudden or so powerful as the white in either strong or tender loams, its effects are longer perceivable, particularly in the lighter lands.

The marl in most cases is obtained by stripping off the top covering, and laying open a floor of it to the extent the vein may admit of, or the improver wishes: for the facility of working it, this floor is generally covered with water, in which it is dug and handled in the manner of pipe or potters clay. One floor being dug out the whole circuit, or length of the excavation, the surplus water that may have entered is baled or pumped out, and in this manner the work is continued downwards to the termination of the vein, or so long as there may be occasion for so doing; landing (as it is called) every sod or spit of marl upon the edge of the pit, or in such a convenient situation as the team employed for its removal shall be equal to drawing to the destined field without any additional force of horses.

Each cart or tumbril load of marl forms one distinct heap: these are disposed in rows at equal distances, and a-part from each other, and which are afterwards carried out and spread in such a manner as to make the work meet, and regularly to cover the whole surface of the marled ground.

When marl is taken from off wastes or commons, it is the practice of some lords of manors to charge 5*s.* per acre for the land marled; others 2*d.* per four-horse load. In the neighbourhood of Lymington, and in some other places, improvers with marl are exempt from this impost, by having more or less of this admirable substance upon the estate to be manured.

But few farmers like to apply marl without the ordinary dressing of dung, to set it at work, as it is called. It has been as frequently spread upon the fallows as lay ground, though the latter practice seems now most generally preferred. When its operation in this way is assisted by a dressing of dung, their united effect is most powerfully manifested in the first instance by promoting a complete carpet of white clover; and secondly, in the succeeding crops, particularly when such are either pease or beans: its continued operation and permanent effect in either sand or loamy soils, is such as to demonstrate the most beneficial consequences for a period of 25 or 30 years.

When land has never been marled, or at least not within the memory of man, and that no vestige can be traced of it in the soil, the quantity most commonly applied is 30 cart-loads of one ton and a half each, or about 45 tons of marl, as it may rise from the differen floors, per acre. Taking the distance of carriage from a mile, and not to exceed one mile and a quarter, th expense of marling per acre will be nearly as follows:

Two pit men and one filler, at 2*s*. 6*d*. per day each,	£.0	7	6
Three carts or tumbrils, and nine horses, at 4*s*. per horse per day, including the value of wear and tear of every thing,	1	16	0
One driver, at 2*s*. per day,	0	2	0
Spreading and pulverizing, at 2*s*. 6*d*. per score loads,	0	1	9
Total expense of 15 loads of marl at this distance,	£.2	7	3
and which being equal to the dressing of half an acre, must necessarily be multiplied by two,	0	0	2
Making the sum per acre at	£.4	14	6
To this must be added the fee to the lord of the manor,	0	4	6
And the expense of clearing or uncovering the marl, per acre,	0	0	9
Making the whole expense of marling at this distance, per acre,	£.4	19	9

The expense of applying this quantity when the field is to be dressed, does not exceed the average distance of 80 rods from the pit, and on the principle before stated, viz. horse labour, within one-fourth of hired or contract price, will be nearly thus:

Clearing the top-soil, or covering of the marl for each 30 loads,	£.0	0	9
Digging and landing, or casting the marl from out of the pit, at 6*d*. per load,	0	15	0
Carry forward,	£.0	15	9

Brought forward, ...	£.0	15	9
Filling, at 4*s*. per score loads, ...	0	6	0
Two teams of four horses, and one driver each, with an additional thill horse, allowing each team to make 15 turns per day, at 4*s*. per horse, ...	1	16	0
Two drivers, at 2*s*. per day each, ...	0	4	0
Spreading 30 loads, at 2*s*. 6*d*. per score, ...	0	3	9
Lord of the manor, ...	0	4	6
Total expense of marling at this distance, per acre, ...	£.3	10	0

But when the marl is to be transported from the pit to the field, at such a distance that one man and four horses can only make four turns in a day, it is also usual for the marl to have been previously dug or landed, and for the carter to fill the load whilst the horses are taking a little hay. The loads upon these occasions are found to be much larger than where the distance of carriage is not so great, and generally estimated at two tons each.

The expense of landing or raising the marl, admitting the same quantity applied, must be equal, as also that of clearing, ...	£.0	15	6
Six days' work for one team of four horses, as before, ...	4	16	0
One driver five days, at 2*s*. per day, ...	0	10	0
Spreading 3*s*. 9*d*., lord of the manor 4*s*. 6*d*.	0	8	3
Total expense of marling at this distance, per acre, ...	£.6	9	9

And for which expense it is plain, that there is but very little more marl procured to the acre than in the first case, that being estimated at 45, and in this instance 48 tons per acre. The same sort of marl occurring, is applied with equal effect on the brown stubborn, and grey tender loams, of the Isle of Wight.

In the cultivated parts of the country, and on some of the wastes between the Southampton and Beauley rivers, argillaceous and calcareous marl prevails (the former being often converted into a most beautiful white brick), yet there are many farmers in this quarter who seem much disposed to relinquish the advantages to be derived from this valuable manure, and in its place apply dressings of

Chalk—Which is alleged, and is thought with reason, to leave the stronger loams in better condition for turnips, than what could reasonably be expected from marl; a circumstance that has contributed, though very unfairly, to the rejection of marl in other cases, by not duly considering the nature of the soil upon which either chalk or marl may have been applied; and as the result must uniformly have been governed by such circumstances, it becomes in some measure necessary to press for the consideration of these gentlemen, the propriety of adhering to a determination, which, in its general application, must proceed in error. That chalk upon the strong loams will be more efficacious than marl, cannot possibly be denied, even were an extraordinary dose of shell marl only applied, but it is also equally clear upon sand and gravelly loams, that chalk, in general, must be far less permanently effective than marl.

The use of marl has, however, been generally superseded by that of chalk, particularly on all the stronger lands within a convenient distance of the Southampton river, and applied at the rate of 35 and 40 tons per acre, brought round from Fareham, Portsdown Hill, and even from the coasts of Kent and Essex in the river Thames; and usually costs in the vessel, about 4s. per ton. To this must be added the expense of discharge, occasional wharfage, reloading the waggons, and carriage home, and altogether will seldom be found to fall short of 9*l*. per acre. It is as commonly applied upon whole, as upon broken ground; but unless the chalk is of so free a nature as to break down and go to pieces the first summer, it is seldom found afterwards to crumble sufficiently to admit its being uniformly incorporated with the soil, and consequently so far fails in producing the desired effect.

In most of the recent enclosures, no pains or expense seems to be spared in affording them a dressing of chalk at the general average quantity of 30 tons per acre; and from the distance of carriage in some instances, exceeding the estimate per acre just given.

The soil of Haling Island being for the most part of a strong and sour nature, has been much improved by large quantities of chalk procured from the Bedhampton chalk-pits: its application is equally on fallow, as upon lay ground, sometimes in a clean state, otherwise as an ingredient in mixings formed with Portsmouth dung; in either way it is considered as equally efficacious.

In Portsea Island, as well as in the parishes of Gosport and Titchfield, chalking is performed, and whether the soil is of a stiff or tender nature, its effects as a meliorater, is equally manifested in promoting a richer and superior growth of garden-stuff, as well as of corn and the better grasses.

The expense of chalking land in the neighbourhood of Gosport, may be stated thus:

The first cost at the pit, of five waggon-loads, estimated at 15 tons, ...	£.0	15	0
Filling, carriage, and spreading the same, at 18*s*. per load, ...	4	10	0
Total expense per acre, ...	£.5	5	0

The effect of which dressing, particularly on new land, is found so very great, as frequently to augment the produce of wheat from eight to twelve bushels per acre. Though chalk has frequently been applied upon the fallows, the most approved method is to spread it on the green sward, where it gradually dissolves and mixes with the surface-mould.

There is, indeed, no manure of a mere alterative nature so readily procured as chalk, and so proper for the purpose of sweetening and rendering more friable the red, tough, flinty loams, as also for improving the shravy loams so frequently met with in the chalk district. The mode in which the chalking is now pursued on these lands, is by sinking shafts in various parts of the field intended to be thus manured, and taking thereout as much chalk as may be necessary to make the work meet at convenient barrowing distances throughout the field. A windlass is placed over the shaft, and a rope with a spring hook or clasp at each end, winds round the windlass, admitting the loaded basket to ascend, whilst the empty one is descending, and which labour can always be very well performed by a single person. Companies contracting to do this work, usually consist of five persons, two pit-men, one at the windlass, and two wheelers or barrow-men; each basket when level full, is supposed to hold a heaped Winchester bushel. The barrows are made of a corresponding size; each square lugg or rod is required to have ten barrows full, or heaps upon it, and consequently requiring 1600 bushels to the acre, the cost of which varies from two guineas to 45s. net money.

"When a strong loam is found mixed with a shrave of flat broken flints or round pebbles, the chalking of such lands with 35 or 40 tons, if accomplished at an expense of five or six pounds per acre, is considered as a valuable improvement, and of which there is much done, both within and near the southern borders of the chalk district.

"Large quantities of chalk are brought from the several chalk-pits situate on the southern margin of the woodland district, and distributed over the wet heavy lands of that country, and at an average expense of about 6*l.* per acre; an expense that produces a more or less effective dressing, according to the distance it may be carried, and which is usually in waggons, making from one turn only with a single team to three turns, with an additional waggon-filling at the pit per day.

There is a very common opinion amongst most improvers with chalk, that the deeper the chalk is procured, the better it answers the purpose for manure, from its falling more readily to powder by exposure to the air; and it is on that ground that so great a preference is given to the chalk which is obtained from the tunnel of the Basingstoke Canal, which is carried through Grewel-hill. This chalk has obtained so great and just a reputation, that vast quantities of it are transported along the canal; and the chalk-pits at Odiham and Kingsclere, are not unfrequently deserted by the neighbouring farmers, for the sake of procuring a superior chalk, though at a much greater expense, from the tunnel under Grewel-hill.

A vast quantity of chalk is dug at Brook-hill, and brought down by the canal to Redbridge, where it is re-shipped to supply the demands by the Southampton river, or is transported by land in waggons to wherever it may be wanted.

At Timsbury, and many other places along the Valley of the Teste, as high as the parish of Rumsey, a malm of a black and white kind is found generally below a peaty covering, and which is used with much success on the sour heath-land. The quantity usually applied is eight waggon-loads, equal to about one barge-load, or 20 tons, per acre. The cost of this manure, or that of chalk, at Redbridge, or at the respective walks along the line of the canal, is about 3*l.* per barge-load, and which quantity, however it professes to be 26 tons, is thought but seldom to exceed the even score. Malm, when obtained, is applied as frequently upon strong clay lands as chalk; it is supposed to be an equal sweetener of the strong sour loams, but quicker in its operation, and not so liable to settle in such situations below the share's point. It is however much better adapted to soils of a lighter nature, and such as have their basis principally of sand and gravel.

Coal-ashes may be sometimes purchased at Portsmouth and at Gosport for about 5*s.* the waggon-load. These are applied as a top-dressing with much effect, on all grass land of a close and cohesive nature, and are found particularly useful on the cold marsh lands lying on the coasts of the islands, inlets, and harbours in the southern parts of the county.

Very great improvements have been made on the light sandy lands in the neighbourhood of Christchurch, by ouze procured from the low grounds, and which in times of old were apparently accessible to the sea water. In places where no material injury is likely to result from lowering the surface; the green sward is carefully pared off, and a spit or more of the rich tender loam (formerly deposited by the land and sea waters) is taken out, when the green sward is again carefully replaced, and no injury is supposed to accrue to the grass land, provided the work is properly done, and during the winter season. The practice, however, is a very extraordinary one, and should be very well considered before it is performed.

These appear to have been the principal manures of an alterative quality resorted to for agricultural improvement in this county. Those of a stimulating nature, or such as possess the means of acting upon substances destined by nature to afford nourishment to plants, come next into view.

In the Vale of Petersfield lime is getting much into use as a manure: it is generally made of the common white chalk of that country, and burnt in kilns with culm or small coal. The kilns are in the form of an inverted cone, and will hold about 30 quarters, consisting of eight heaped Winchesters each. The size of the chalk stones burnt in these kilns seldom exceeds four or five inches cubic measure: the price of the lime at the kiln *3s. 8d.* per quarter, and which is applied in a proportion of about 15 quarters per acre. The cream-coloured lime produced from the grey chalk stone of this neighbourhood, though excellent for cement, is by no means approved of for manure.

Mr. John Smith, of Languard farm, in the parish of Brading, Isle of Wight, has used lime in the proportion of 320 bushels to the acre: this was applied in its caustic state, and unmixed with any other substance, in the month of December, upon the young clover. There was no material benefit observable from this extraordinary dose in the ensuing crop of clover, but the crop of wheat which succeeded was estimated to be *augmented* eight or ten bushels per acre. The soil, where the lime was used, was of a complete sandy basis, and the crop of the part of the field thus limed, came earlier at harvest than the unlimed part by several days. It is now 16 years since this experiment was made, and its effect is still visible in all the crops of corn with which the field is cultivated.

Gypsum.—The long knowledge and experience the Surveyor has had of this substance as a manure in Pennsylvania, and other parts of the United States of North America, justifies him fully in placing it in this class of manures. It has lately been introduced as a top-dressing for grass land, and with a view of promoting the growth of turnips in this county. In both cases there is little question of its operating with due effect, provided that with lime, the soil supplies the requisite substances for each of them to work upon. Besides the disorganizing, and consequently stimulating properties of caustic lime and gypsum, they both supply a certain portion of calcareous earth, and which, as far as it goes, operates as a valuable alterative manure upon all clay and sandy lands. The quantity of ground *French plaster* (that procured from Nova Scotia not being esteemed so valuable) sown by the Surveyor in Pennsylvania, never exceeded two bushels or nine pecks per acre. In this country a larger quantity has been recommended, but no well attested or satisfactory account of its operation *here*, have as yet reached the Surveyor's knowledge.

Turf, beat, peat, and coal-ashes, are all much used; and whenever they can be reasonably procured, in this county. These, in proportion as they may contain alkaline salts, operate direct, and as feeding manures: their residuum can operate in no other way than in producing a different arrangement in the mechanical structure of the soil.

When the Berkshire peat-ashes are used, they are applied most commonly for sainfoin or young seeds in the month of February, seldom exceeding 20 bushels per acre, and cost at the wharfs *7d.* per heaped Winchester bushel. The common peat or turf-ashes will usually cost about *4d.* per bushel, and a waggon-load of 60 bushels is considered a proportionate dressing for turnips, sainfoin, or young seeds. The great superiority of the Berkshire peat-ashes, and all others obtained in similar situations, arises from the large quantities of white malm, or a solution of chalk, brought down from the higher country and there deposited, forming the bottom of such bogs, and which being calcined by the burning peat, forms a considerable part of the bulk of all such ashes, and consequently operates in a triple capacity, viz. as a feeding stimulant and alterative manure

As there are many veins of peat, and soil of a moory nature, dispersed through the vallies in which the source of the Medina and Brading rivers have their source and as these, when dry, burn to an ash, which is foun

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useful upon the grass grounds and young clovers, many of the most active occupiers in that part of the Isle of Wight, find their account in converting such small, but unprofitable sponges, into ashes, and which they apply in a proportion of two bushels to a square perch, and consequently 320 bushels to the acre.

There are several occupiers along the sea-coast and inlets of the southern parts of the county, that collect rack or sea-weed for manure; but there is no one that seems to pursue this important economy to the extent which Admiral O'Brien does on the coast of the parish of Titchfield. This gentleman manures his young seeds, before Christmas six waggon-loads of stable and farm-yard dung accumulated in large quantities, principally by sea-weed, with which the Admiral has his straw-yards bedded very deep for the winter, and with which he also keeps them constantly littered during the summer season. When he intends feeding off his annual crop of turnips, the lay-grounds and stubbles are also littered with sea-weed, and which, by the trampling and couching of the sheep, becomes short and easily decompounded, when turned under with the flag, or left as a manure upon the grass lands.

Ploughing in Green Crops.—Besides the case before noticed, in the late practice of the Rev. Mr. Rivet, at Milton, buck-wheat has also been sown and ploughed under for manure, when in full sap, by Mr. Smith, of Languard farm, in the Isle of Wight. The experiment, however, was by no means satisfactory, notwithstanding that the soil was a strong brick-earth, under previous winter-fallow in preparation for wheat. The buck-wheat was sown in the middle of July, and turned r in full blossom about the beginning of and in which condition the ground lay tter end of October, when the wheat was the stale furrow, reduced to a very goo horoughly cleaned, well drained, and laid dry same gentleman has also sown malt-dust, [illegible] per acre, upon wheat, the latter end of Marc ound to answer very well; soot also he has a about 60 bushels to the acre, and whether as a ssing for wheat, or upon pasture land, he h as found it very well to answer. The first cost of ot was 8*d*. per bushel, besides carriage; that of alt-dust 5*s*. per quarter (of eight heaped Wi er bushels).

e value, and manner of applying town, farm-yar , table-dung, has already been noticed in the pr details. In the Petersfield and woodland di , as well as for the hop-grounds in the neighbou of Odiham and Alton, woollen rags are used n a proportion of 8 cwt. per acre. These are chiefly pro-cured from Portsmouth, although there are some intro-duced by the Basingstoke Canal from London.

Their first cost is commonly about 6*s*. per cwt., which amounts to	£.2	8	[illegible]
Cutting 3*d*. per cwt. 2*s*.; carriage 1*s*. 3*d*. per cwt. 10*s*.	0	12	[illegible]
Spreading, 3*d*. per cwt.	0	2	[illegible]
Making the whole expense of such dressing amount to	£.3	2	[illegible]

And is found to be particularly applicable to strong sour land, and where their effect has been plainly continued for three or four years. In the hop-grounds, this manure is applied at the rate of 10 cwt. per acre. A ton of rags will commonly cut into 200 bushels; the cutting of which will cost about 5*s*.

Whenever the tillage land and winter-fallows are so wet as not to admit penning with the sheep, the upland meadows are sometimes folded in an enlarged space, giving such land about a two-third dressing. This succeeded by an ensuing moist season, will much improve and augment the ensuing crop of grass; but whenever the dry March winds dispose the folded surface to crust or bake, and which will sometimes happen, harrowing, or lightly scarifying, affords immediate relief; besides its tending to the more complete destruction of the moss, and consequently encouraging a closer and sweeter pile of herbage. When the average produce of hay for some years has been about 30 cwt. per acre, by this treament it has been frequently improved to two tons and upwards, of a superior quality, and with a proportionate increase in the value of the aftermath, or second growth.

SECT. III.—IRRIGATION.

UNDER the head of water-meadows, every thing which may have occurred to the notice, or, for the present, within the view of the Surveyor, has already been stated.

On the subject of feeding old broken-mouthed sheep, it may not be amiss to state the practice of Sir Thomas Miller, who finds that grains mixed with chopped hay, ns a very good food for such animals, as well as for and horses. The mixture should be given in about l quantities, well mixed together, and which upon will be found to answer an excellent purpose, in aining these animals in very good condition, as in eking out and economizing the more valuable ing mess upon which sheep or cow cattle may be ning.

CHAP. XIII.

EMBANKMENTS.

IF we except the embankments of Brading and Yaverland, in the Isle of Wight, some of which in their present improved state, exhibit specimen of the best feeding land in the county, the appropriation of almost all the other embankments on the coasts of the islands, as well as of the main land, has been that of saltings, for the manufacture of sea and medicinal salts.

Many of these salt-works are now abandoned, but the brine and bitumen with which the former salt-pans are saturated, preclude all expectation for a great length of time of these levels being convertible to agricultural purposes. The sea-weed or sea ore, of which most of the mounds or sea walls are formed, is found to last a prodigious length of time, and to sustain the constant lashing of the tidal waters with extraordinary firmness. There is no other point in the formation of these banks that can afford the humblest hint towards permanency or imitation, even to one who has never before seen works of such a nature; for in their construction against a long and heavy fetch or swell of the sea, it is utterly impossible for any form to be less efficacious, or worse contrived.

CHAP. XIV.

LIVE STOCK.

SECT. I.—CATTLE.

HAMPSHIRE does not appear to possess, as exclusively belonging to the county, any specific breed of cow cattle. The Sussex, Suffolk, Leicester, Hereford, Glamorgan, North and South Devon, and Norman breed, are indiscriminately met with, and have their respective advocates, in every part of the county. The Sussex, Suffolk, Hereford; Glamorgan, North and South Devon, command however as general a preference for draught, as does the Norman for the bucket, or the use of the dairy.

The Sussex is an useful and ornamental animal in a very high degree; perhaps not so active or so hardy as the North Devon; yet being properly nourished, and kept in a condition somewhat above the labour it may have to perform, and with their feet well qued or shod, are found capable of performing long and heavy journies upon the road, as well as of enduring much fatigue in the yoke or harness at home.

Mr. Seward, of Burriton, as well as other gentlemen on the eastern side of the county, work these oxen. In the winter season, not being so much used, they are chiefly subsisted upon oat and barley-straw; but when the spring work comes on, they are allowed what hay: and during summer, what clover, tares, or other green food, they will eat. The soil being various, as also from its being in a whole or broken state, one, two, three, and even four pair, are occasionally yoked together, and which, under all such different circumstances, will usually plough their acre per day in a journey of eight hours. Their step is neither hastened or retarded by the length of the team, and the number of yoke employed is always regulated by the resistance the nature of the work presents to the plough, or any other draught they may be required to overcome. These oxen will generally improve, whilst thus employed, between three and six years old, from 15*l.* to 23*l.* per head, and will, when fat, average about 14 score per quarter.

Mr. Seward is much in the practice of using spayed heifers of this breed for the draft, and which he finds to work equally well with the oxen: he has one now grazing, which was taken out of the team last November (1806), and saving that it certainly is not well grown behind the shoulder, seems to conceal nearly all the defects formerly noticed in the North Devon breed. (Vide Devon Report.) It is a remarkably fine animal, and at this time (eight years old) estimated to weigh about 14½ score per quarter. Mr. Seward intends giving it Swedish turnips, and with them finishing it upon flax-seed, which he grinds with four times its quantity of barley or four times its quantity of wheat bran, either of which is found equally necessary to mix with the flax-seed to make it grind free; about a bushel of ground flax-seed and barley, mixed with about eight bushels of chopped hay and straw, or an equal proportion of the flax-seed ground with bran, is the food which, with Swedish turnips, Mr. Seward finishes his grazing cattle, and which, from his long experience in these matters, he has always found to have answered extremely well. This gentleman has seldom less than ten of the Sussex steers or spayed heifers at work upon his farm; six of which he annually fattens and sells off, and breaks in an equal number to succeed them every year.

Two or three plough-teams of the Suffolk steers have been successively worked by Sir Henry Tichborne for many years. These are always raised upon his farm, but there did not appear to be any rules observed in breeding or rearing them, or indeed of any other sort throughout the county, that requires particularly to be noticed. They are broke in as usual at about three years old, and worked till they are six, during which time, and whilst in harness, they will increase annually in their value about 40*s*. per head. In winter they are chiefly subsisted upon barley or oat-straw, but in the spring of the year, when their exertions are more continued, they are fed upon good sound meadow-hay, and green food of various kinds is supplied to them throughout the summer: with this treatment, and without falling off from good store order, two pair will generally plough their acre in a journey of eight hours. These oxen, when fattened to their frame, will weigh about 10½ score per quarter; they are remarkably gentle in harness, and little less active than the North Devon breed.

The only ox-teams observed for some distance round Hursley, were those of Sir William Heathcote; his absence from home when the Surveyor first called, prevented him from acquiring any particulars respecting the advantages obtained from animals so employed. The teams consist of three yoke or pair, and as two pair only are commonly worked at a time, the other pair is supposed to be resting every third day. They appear to be a medley of Hereford, Sussex, Glamorgan, and Devon; are kept in good working order, and stated by the ploughman to plough an acre, with Goldfinch's patent plough, in about eight and an half or nine hours.

Two teams of genuine North Devon steers are constantly worked upon the farm of Sir Thomas Miller, at Froyle. Candour however must admit, that these animals were by far in too low a condition for any real advantage to be derived from their labour. The want of a spare pair to each team, may be assigned as a principal cause of the exhausted state the steers appeared to be reduced to, but which Sir Thomas Miller seems determined to remedy in future, by an additional pair to each team.

Upon the light downy lands in the parish of North Houghton, two teams of the North Devon breed are kept by Mr. Gudgeon: these were also in a much lower condition than ought to be expected, seeing that a spare pair is kept for each team. Something wrong appeared to be in the management of these teams; they were either over-worked or improperly attended to, as their appearance indicated the very reverse of what it ought to do, and that is, of improving 1*s.* per head weekly during their years of labour. It was understood from the ploughman, that each team seldom ploughed more than three roods of ground in a journey of eight hours.

Mr. Stares, of Fareham, works oxen upon his farm, and is the only person in that neighbourhood who appears much devoted to that admirable practice; but which has not escaped the sound penetrating mind of Colonel Mitford, of Exbury-house, who works them in harness, although his better judgment inclines him to prefer the principle of the yoke, as best adapted to the seat of strength and powers of the animal. He has observed prodigious exertions and great weights raised, both in Spain and Italy, by tackling the oxen at the horns: the efforts however made by the animal at such times, seemed more the violence of exertion to disentangle, and free itself from a pressure by which it was encumbered, than any thing like a regular and continued performance of daily labour.

Mr. Smith, of Brockenhurst, also works oxen. His team consists of three pair, two pair of which may be considered as being kept alternately and pretty steadily at work throughout the year. The opinion of Mr. Smith's bailiff on this point is, that for all draught labour requiring to be done upon the farm, two pair of steers are quite equal to three horses. For long and heavy journeys upon the road, he conceives horses would answer better, or at least a larger breed of steers would be required than those at present worked by Mr. Smith, which are a miscellaneous sort, and of the common breed of the country. At the time this information was procured, it was past Candlemas, and the six steers had not then consumed during the passing winter 6 cwt. of hay. If fattened to their bone, they would scarcely reach ten score and a half per quarter, yet it is the opinion of the bailiff, that they have improved 40*s*. per head within the last twelvemonths. This team is also worked in harness, but the draught upon the hames is most judiciously fixed much higher than is customary in the country, and by which means the draught bears more aptly towards the withers, and in a line with the neck and spine of the animal. Whenever it is tolerable fair ploughing, whether upon lay or fallowed ground, the traces of the team are seldom dropped, without a full acre being ploughed with the common one-wheel, or Plenty's patent plough, and with the attendance only of two boys, one to drive the team, and one larger, about 14 or 15 years old, to hold the plough, and by whom the ground is ploughed, whether out of lay or previously broken, in a very clean, even, regular, and workmanlike manner.

At the royal farm called New Park, in the parish of Brockenhurst, there are also ox-teams, composed of of the North Devon and other west country cattle. In the working management of these animals, or in their grazing economy after their labour is done, there does not appear to be one single circumstance deserving notice, or meriting imitation.

In the Isle of Wight there are some ox-teams of the North Devon breed, but having little road-work to perform, like most other of the teams in the county, they are very seldom shod. By some of the most intelligent occupiers and workers of oxen in that island, it has been justl observed, that the best mode of applying the draught, so as to obtain the greatest and most continued exertion without hampering or exhausting the animal, is to have the collar well bolstered at the withers, and to have the hames so adjusted as to admit the draught or principal pressure on a line with the back and neck, instead of the point and lower part of the shoulder. This principle, to a certain extent, has been carried into practice by Mr. Smith, of Brockenhurst, who, as well as the workers of oxen in the Isle of Wight, find their animals relieved very much by it; enabling them to step out much better, and to use their power with far greater ease than when harnessed, and that the resistance they have to overcome is fixed and settled near the points of the shoulder, and where the skin is scarcely of half the substance that it is found upon the withers, and infinitely more liable to chafe and gall. The time for breaking in the steers is after they are turned three years old. They are kept working until they are six or seven years old, during which time, if kept in good store order, and a little above their work, they will annually increase in value, upon the average size of draught cattle in the county, about 45*s*. per head per annum.

The Rev. Mr. Haldon, of Thruxton, feeds his horses, cows, and fattening bullocks, upon cut barley-straw and chaff, mixed with the liquor and substance of steamed turnips. Last winter this gentleman fed six Welsh bullocks and a Welsh heifer, with four farm and two riding horses, from the 6th of November to the 16th of May, and the quantity of hay consumed by the whole stock during that time scarcely amounted to one ton. The substitute for hay for the horses was barley-straw cut into chaff, and moistened with the liquor of steamed turnips; this, with a bushel of corn per horse per week, constituted their whole nourishment. The cattle were fed with the substance of the steamed turnips, after being well mashed, and mixed with so much cut straw as to make the whole consistence tolerably dry. Three feeds of this mixture, amounting to about a peck each time, with as much raw turnips as they would eat, were given daily to the cows and oxen. The effect on the produce of the cows was, that of depriving the milk or butter of any unpleasant taste consequent to their feeding upon turnips, and the fattening cattle throve in so great a degree upon it (allowing for the absolute difference in the times between their being laid in and sold out), as nearly to double their value in the half year they were thus fed and managed. The turnips were prepared in Cook's patent steamer.

Dairying.—What has already been observed with regard to the indiscriminate mixture in the breeds of cattle employed for draught in this county, will equally apply as to the different breeds of cows in use for the dairy, where, although the genuine Norman and crosses from that breed, are universally preferred, yet necessity seems to command in the present day, that a considerable mixture of different breeds should be admitted in composing a dairy of any extent in this county.

Any one proposing to establish a dairy, and precluded from a choice of the breed he would otherwise prefer, the point next for consideration is the management of the dairy: in this there is no one thing so indispensably required, as to be scrupulously attentive to the daily scalding, and keeping all the dairy utensils perfectly sweet and clean; the milk should be as cool as possible before it is strained off into the leads, where it should be left undisturbed for 12 hours only, when the cream should be taken off, and kept apart from that produced by a subsequent skimming, and which should take place at the end of 24 hours after, but not sooner; by this time all the cream will have risen. Should the quantity of the first skimmed milk require for the convenience of the dairy that a double portion should be put together, the leads, pans, tubs, or keelers, may be nearly, if not quite, filled with it. The cream procured by these different skimmings should be kept and churned a-part, and thus butter of first and second quality is obtained, and in which here is generally a difference of about 4*d.* per pound. fter the cream is collected from each meal, whether the first or second skimming, about a one-third part so far heated as to bring it just upon the boil, when it is immediately returned to the remaining two-thirds, and well stirred and mixed up together: this will prevent the cream from being so soon sour; it will cure any offensive flavour that might be likely to prevail in the butter from the food upon which the cows may have fed, as well as hasten the more complete decomposition of the cream in the churn, and give to the butter a sweeter and better keeping quality.

The churns in general use through the dairies are those of a barrel form, provided with breakers projecting inwardly in a line with the staves, worked in a frame and upon a horizontal axis. They vary in their size from 15 to 40 gallons, and the quantity of butter of the first quality which may be churned by one person in the larger vessels, is from 60 lb. to 80 lb., and in the ordinary time of about two hours. As a vast deal of air is always generated in the early stage of this churning, it becomes necessary for the person churning to be attentive to this point, by giving frequent vent to the air at the cork hole on the top of the churn.

The length of time the cows are generally allowed to be in milk, is about 40 weeks, during which time the average produce of butter given is 5 lb. per cow per week, for the first 20 weeks, and 2½ lb. per week for the remainder of the period; and this is a quantity full as much as will be allowed for the produce of these mixed breeds, and the quality of the land upon which the dairy cows most generally depasture.

A rough estimate of the expenses and profit of dairying, collected on the mean of several different statements procured in various parts of the county, may be thus taken:

Dairy Dr. to Expenses.

To 3½ acres of inferior meadow or pasture land, and which is considered necessary to sustain a cow throughout the year, at 25*s*. per acre,*	£.4	7	6
Tithe, at about one-fourth of the rack-rent,	1	1	10
Parochial assessments,	1	6	0
Interest on capital, risk, and cow-doctor's charges,	1	5	0
Attendance, including dairying, hay-making, and foddering expenses per cow,	1	12	6
Total amount of expenses,	£.9	12	0
Net profit per cow, and of four sheep per ann. upon 3½ acres of land,	5	3	2
Total value of produce from 3½ acres of land depastured thus by sheep and dairy cows,	£.14	16	0

Per Contra Cr. by Produce.

By 150 lb. of butter, at 1*s*. 2*d*. per pound,	£.8	15	0
Calf,	1	7	6
Skimmed-milk, whether for sale, for cheese, or for feeding pigs,	2	5	6
Profit on four sheep run with the cow in the summer, and during the remainder of the year,	2	8	0
Total value of produce of 3½ acres of ground so appropriated,	£.14	16	0

The Norman or Guernsey breed are justly held in a high degree of preference for the pail. Instances are not rare, of these cows, when well summered, and at six or seven years old, yielding from 9 to 10 lb. of butter per week from May till Michaelmas. These animals, in their genuine imported and uncrossed state with a larger English breed, will seldom exceed six score per quarter; but however fat and well finished for slaughter, their fat will always appear of a high waxy colour, and certainly inferior to the quality of English beef in general. The same objection has been stated against the calves of this breed, for suckling, but which is strongly contested, on the principle, that when slaughtered with other calves, and sent to the London market (a practice by no means uncommon), no objection or difference whatever has been returned in their prices.

A cow of the Norman breed, belonging to Mr. Anthony Groves, of Lymington, produced in 1797, in ten months and twenty days, 1336 gallons, two quarts, and half a pint of milk, beer measure, which at 2*d.* per quart, sold for 44*l.* 11*s.* 0½*d.* Another cow also, of the Norman breed, but of less size, which belonged to Mr. Richard Jennings, of Milford, yielded from 15 to 16 lb. of butter for several weeks after calving. This cow was fed on hay in the winter, and had a range over three paddocks with an old horse. Mr. Groves's cow was fed in the house during winter, with grains and hay.

Suckling.—For this purpose, a number of cows are kept in different parts of the county, and many calves are suckled for supplying with veal the markets of London, Portsmouth, Chichester, Winchester, Newbury, Reading, Salisbury, &c. Upon this subject the different statements procured upon the Survey, when reduced to a mean standard, will be nearly this:—that one cow of the ordinary breed of the county, and during the period of her milk, say 40 weeks, will suckle about 3½ calves, the average weight of which will be about 7½ score, or 150 lb. each, and which, sinking the offal, will sell at home to the London or other butchers or drovers at about 8*d*. per pound the year round, and consequently making 525 lb. of veal, will amount to £.17 0 0

The net profit upon sheep must be taken, as before, at	2	8	0
	£.19	8	0
From which must be taken the first cost of 3½ calves, which at 27*s*. 6*d*. each, amounts to	4	16	0
Rent, 3½ acres, as before,	4	7	6
Tithe and parochial levies, as before,	2	7	10
Interest on capital, risk, and cow-doctor's charges,	1	15	0
Attendance, including mowing, hay-making, and fodder,	1	10	0
Estimated expenses,	£.14	16	4
Net profit of cow and sheep upon 3½ acres thus employed,	4	11	8
	£.19	8	0

The net profit of 4*l*. 11*s*. 8*d*., which appears to accrue from this statement upon three acres and an half of land, must be taken exclusive of the value of the milk obtained after every meal, when the calves have done sucking, and which does more than pay any small charges omitted in the column of expenses. It is also to be observed, that in both statements the quantity of land allowed per cow, supposes that the animal is fed on grass or hay during the twelve months; but as this is never done, at least upon a large scale, the difference must be taken between the value of hay, and the run upon the coarse parts of the farm, with access to, and lying in the straw-yard, whilst the cow remains dry; and which difference must be added to the net profits of the stock in both cases.

The cows kept for the purpose of suckling calves or raising veal for market, are chiefly in the hands of their owners in every part of the county; but there are many cows kept for the use of the dairy, that are rented out to dairymen and their families at from 7*l.* to 9*l.* per cow. The extent of ground usually allowed for the keep of such cows during the time of their being in milk, is from two to two acres and a quarter per cow, included in which is the ordinary run of one sheep per acre. In the winter season, and whilst these cows are out of milk, they are usually sustained in the straw-yard. The dairyman is supplied with a house for himself and family, is exempt from the payment of tithes and all parochial assessments, and is allowed fuel from the owner of the dairy, of from 15 to 20 brushwood bavins or faggots per cow. On the other hand, he finds all dairy utensils, purchases his own swine, which he keeps generally in the proportion of one good store pig per cow; and is entitled to the calf and full produce of the cow, as before stated. The average cost of these cows with a calf at their side, is about thirteen guineas, and which, when their milk is done, are either grazed upon the farm, or sold bare, for the purpose of feeding, This practice obtains very generally throughout most parts of the county, including the Isle of Wight.

Sir George Tapps, who appears to have paid a good deal of attention to the affairs of rural life generally, remarks, that although the Sussex cows are by far the most ornamental park stock any where to be met with in England, they certainly are not so quiet in pasture as most of the more homely breeds of the county: they seem scarcely at any time to have patience sufficient to fill themselves, when they become restless and uneasy, and are more frequently observed prowling along the hedge-rows with intent to break pasture, than any other breed of cows at present known within this county.

SECT. II.—SHEEP.

In the woodland district of this county, the heath sheep and Old Hampshire, or the native Wilts breed, were those formerly the most prevalent, but which in many places are now found to have given way to a cross of the New Leicester upon the native speckled-face Berkshire and Old Wiltshire breeds. The wethers of the first cross, at 28 months old, will weigh about 24 lb. per quarter, and average about 5¼ lb. of washed wool per fleece, worth in common about 15*d.* per pound. The wether produce of the cross of the New Leicester upon the Wiltshire, at the same age, will arrive at an equal size, and shear 6 lb. per fleece, worth 16*d.* per pound. The rough fat in both cases is judged to be nearly the same, and of which an average is stated to equal about 12 lb. per sheep.

It is however contended by many discerning and experienced men, that the breed best suited to the woodland district, is the old round-nosed, close-horned Wiltshire, which, from their superior height, are stated to stand better out of the dirt, and to bear with seemingly less suffering, the wet cold layer of the woodland clays, than the New Leicester, or any crosses of that breed upon the native Wilts or Berkshire. The wethers of the Wiltshire sheep, raised and fattened in the woodlands at 30 months old, usually average about 22 lb. per quarter, and shear from four and a half to five pounds per fleece.

The chid or ewe lambs falling before Old Candlemas, are generally, be their breed what it may, shorn. The wether lambs destined for sale, are mostly exempt from this operation, as well as all the other lambs which fall later in the season. The shearing of the young fleece is said to thicken and improve it; at all events, there can be no question of its rendering the coat less liable to open and part along the line of the neck and back of the animal during the succeeding heavy and driving rains of winter. The average produce of lamb's-wool may be taken at 1½ lb. per head, and is worth from 18*d.* to 20*d.* per pound.

That most valuable of all sheep for a dry range and layer, for patience and abstinence in the fold, and afterwards in working hard for their food, the native breed of the South Downs in Sussex, are spreading to a very wide extent throughout this county.

When the female of this breed has passed its full-mouthed age, and is consequently culled or refused from the flock for grazing, admitting it to be the genuine legitimate South Down ewe, its fleece will rarely exceed 2¼ lbs., or run less than 12 to the tod. The produce of the same ewe raised in the tillage districts in this county, with occasional access to a richer pasture than may be afforded by the downs, weaned upon the after-grass of sainfoin, carried through the winter upon turnips and sainfoin, or other hay, and penned upon tares and the artificial grasses the ensuing summer, will be found gradually to enlarge its frame, and by what has been represented from the Yorkshire clothiers, to throw off a larger quantity, but inferior quality, of wool. Should this statement be correct (and the Surveyor has spared no pains to render it as much so as the circumstances of his situation has allowed), it surely calls for some consideration, and as such, and so far as the subject may have come within the knowledge of the Surveyor, he will endeavour to afford it, in the sequel of this Report.

The average weight of the South Down ewes drawn annually from Sir Thomas Miller's flock, and fattened for his table, is about 16 lb. per quarter: they generally yield about 8 lb. of rough fat, and shear 2½ lb. per fleece.

In the country skirting upon the chalk lands, a cross between the South Down and New Leicester was sometimes met with, the wethers of which, at 30 months, will weigh 20 lb. per quarter, and shear 4½ lb. to the fleece.

The time most approved for putting the ram to the ewes, by those flock-masters who have been so fortunate, or sufficiently provident to secure a supply of good spring food for the ewes and lambs, is about the 15th of September; the lambs will consequently fall between the 10th and last of February; and to ensure a good lamb, none ought to be yeaned later than the 10th of March.

From what is above stated it will appear, that the South Down ewe flock kept by Sir Thomas Miller, at Froyle, runs rather less than twelve to the tod of 28 lb. The flocks of other gentlemen in the county, curious in preserving the genuine excellence of the South Down breed, may be stated as follows :—Mr. Branston's ewe flock at Hall-place, 10 to the tod ; Mr. P. Pawlett, of Sambourne, about 11 to the tod ; Mr. Drummond, of Grange-park, 9½ to the tod ; Mr. Bulpitt, Old Alresford, 8½ to the tod ; Mr. Lipscombe and Mr. Seward, of Weston, in the parish of Burriton, flocks depasturing on the same downs, 11½ to the tod ; Sir Henry Tichborne's, 7½ to the tod ; and Mr. Goldfinch's, 9¼ to the tod, and in all cases, including the ewe tegs, or last year's lambs set for stock. Many other statements were noticed on the Survey, of a corresponding tenor, but these are sufficient for the purpose to which this information is intended to be applied in the sequel of this Report.

Upon the chalk downs in the Isle of Wight, the Sussex breed are becoming equally general, and so far as they are known, are as justly appreciated in such situations as on the more extended downs in other parts of the county. These sheep would be kept in far greater numbers in the Isle of Wight than they now are, was the quantity of wool produced sufficient to induce the wool-buyers to visit the island, and to make a proportional allowance in price for its superior quality to the Dorset or Old Hampshire breeds. This circumstance seems to have been very justly considered by the Christchurch Agricultural Society, who have proposed the establishing of a wool-fair in the southern parts of the county, on the principle of that of the Lewes wool-fair, and from which similar and every possible advantage may be expected in future, in not only obtaining a fair price for the different qualities of wool that may be exhibited, but in exciting a more general emulation among the wool growers in the surrounding country.

The very unfair price hitherto obtained for superior wool in the Isle of Wight, has not repressed a spirit of improvement in other respects among the flock-masters in that island, by crossing their most prevailing breed, the native Dorset, with the New Leicester, a trial which appears to have been very successfully made by Mr. Arnold, of New Barn. This gentleman has been steadily engaged in this pursuit for about four years, in which time his main object has been, and is still continued, to get as much of the New Leicester blood, as time and experience shall prove that the downy sheep-walks of his farm, aided by large quantities of green crops annually cultivated upon it, shall be capable of carrying, or of sustaining to advantage.

Mr. Arnold generally procures the great fall of his lambs to take place between the middle of January and Candlemas. His ewes are folded with the store wethers whenever the weather will permit, and within a month or five weeks of their lambing. The aggregate number he allows for making a good fair dressing upon an acre of land, is about 3000, and this whether upon the summer-fallows for turnips or wheat, or upon the winter-fallows for barley.

The crop of lambs produced by this flock is quite as certain and as numerous, as was formerly experienced from the horned sheep, *i. e.* a mixture of the Old Wilts and Dorset, and which rarely fell short of numbering at shearing time as many lambs as ewes. The prime of the ewe lambs are set by Mr. Arnold for stock, the six-toothed wethers, or those turning of four years old, and the full mouthed ewes, or those turning of four years and a half old, are purchased by the graziers in the south and eastern parts of the island. The wethers when fattened at 28 months, will average about 18 lb. per quarter, and shear 5 lb. of washed wool to the fleece: this age, or at two years and a half old, will in future be always found the most advantageous time for bringing the wethers of this crop to the shambles. They range over the downs the whole winter, and are occasionally foddered with hay during the severity of that season.

Through all the southern parts of the county, and generally in the Isle of Wight, the Dorset ewes are laid in about Michaelmas, and will cost from 45*s*. to 50*s*. per head. The earliest of such ewes will drop their lambs at Christmas; these are commonly fattened and sold off before the middle of May, and at an average price of 40*s*. per head: the ewe is then put to good keeping, and returned fat in all August, and this is thought to do very well, if in ten months the lamb, fleece, and ewe, turn over, or double the first cost of the ewe—a result in which the feeder is seldom disappointed, provided proper care and pasturage are taken and provided for them.

The lambs produced by the cross of the New Leicester on the Dorset, would fatten early and answer extremely well for this purpose, were they able to perform the journey to London. A considerable demand is, however, made for them at Portsmouth as early grass lamb, and in other places for the home supply. These ewes yeaning at Christmas, and having plenty of spring food, with a warm dry layer, will always bring their lambs forward sufficiently early to pay well.

Instances are known of these lambs at three months old selling from 45*l*. to 50*l*. per score.

The Wilts, or common Hampshire ewe, will cost from 25*s*. to 40*s*. each. These laid in between Michaelmas and Christmas, and returned lamb, fleece, and ewe, within the twelvemonth, have been known to pay upon a small scale, and when they have had plenty of spring and summer food, extremely well indeed.

The gentlemen the Surveyor had an opportunity of seeing, and who appear to have paid most attention to the improvement of wool by a cross with the Spanish Merina*, are as follow:

Mr. Richards, of North-house—this gentleman observes, that the Merina upon the South Down, after the second cross, or in other words, two parts Spanish to one part English blood, will, even under very unfavourable circumstances as to age or condition, yield a very great and improved increase of wool; a truth that can be no where better enforced than from the following example: a tag ewe, with a lamb at her side, produced 5 lb. of washed wool; a ram lamb, her twin brother, at the same time sheared 6 lb. of washed wool. The frame of the ewe tag in store condition, was judged 13 lb., and that of the tag ram 15 lb. per quarter: hence it is plain, that the cross must greatly have increased the closeness and fineness of the fleece, otherwise with little or no increased length of staple upon so confined a scale, it could not so far have exceeded the ordinary weight of the flock upon which the improvement was made, and which usually runs about ten to the tod. The Merina ram which produced this improvement was purchased of Mr. Woods, of Chilgrave in Sussex. This animal yielded a fleece of washed wool that weighed 8¼ lb. last summer, and the preceding season a still greater quantity, as it is stated to have amounted to 12 lb., but supposed to be in the yoak.

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* Merina, very fine wool. Merino, a bailiff, also one that has the care of sheep. Moreno, a dark brown colour.

Colonel Cunninghame, of Malshanger-house, has recently established a flock, the cross of the Merina on the Ryland. The wethers of the first cross are expected at three years old to weigh 16 lb. per quarter, and to shear 4 lb. to the fleece. This female produce farther crossed with the Merina, will improve the fleece both in quantity and quality, and which is intended to be continued until the proportion between the Spanish and English blood is as six to one; a predominance little short of the genuine Merina, but with an improved carcass derived from the Ryland stock, and which Colonel Cunninghame with great reason supposes, by due care and attention, the soil and climate of this country will very well sustain. The Colonel has been led to this choice by the great prevalence of character in the Ryland with the Spanish, and which in some of their most leading features (form excepted) appear to have descended from the same stock. His Merina rams being rather under size, shear only 6 lb. of washed wool. The Hereford ewes will average rather more than 2¼ lb. to the fleece.

Mr. Jenkinson, of Beech-house, in the parish of Christchurch, has paid much attention to these matters. The improvement which the Ryland promises to make in the frame of the Spanish breed, and the great similitude in the character of their fleece, forms a well grounded expectation that much national advantage will accrue from these exertions in attempting to improve the quantity and quality of British wool. The Surveyor was shewn a fleece of one of Mr. Jenkinson's Merina rams, which in the yoak weighed $12\frac{1}{2}$ lb., worth 2s. per pound.

Colonel Mitford, of Exbury-house, has also for some years past turned his attention to this cross, and which at the seventh remove, that is, containing about seven-eighths Spanish blood, is found little, if at all, inferior to the native Merina, the full-mouthed wethers of which, when fat, will weigh about 16 lb. per quarter, and shear about 5 lb. of washed wool to the fleece. Colonel Mitford observes, that there is strong ground for believing that the quality of the Spanish wool may be supported in the climate of this island; and from this circumstance, that even when it might be thought adulterated with an eighth part of English blood, a manifest improvement has been made in the frame of the animal, and the fleece of this cross, so far from being deteriorated by a slight mixture of English blood, is evidently improved by it.

When a great part of the cultivated land in this county was in tenantry, or open common-field, or meadow, the number of sheep kept in particular parishes was regulated by the yard-lands contained in the respective estates forming such districts. This however varying as to the extent of the yard-land, rendered it, unless in particular places, as difficult to ascertain the acreable sheep stock of the county from such data, as it is at present, but which, where the old maiden downs have not been destroyed by paring and burning, their green sward is justly supposed to be greater at present than at any former time; first, from the smaller size of the sheep now kept; and secondly, from the more universal culture of other green crops in addition to the former temporary grasses. This however, in the down district, is not generally supposed to balance the great deficiency of sheep stock, from the improvident destruction of the former sheep-walks; by the aid of which, formerly, the estimate appears to have ran, two sheep for every three acres of arable and grass land throughout the county. Even this must be admitted as an extremely loose estimate, much depending on the quantity of green food cultivated, and the still partial introduction of South Down sheep, which in comparison with the Old Hants or Wiltshire stock, may be, and are actually run in an average proportion of five to four.

The down sheep-walks are universally allowed to afford a sound and wholesome range, as are also most of the heaths upon which the sheep depasture in the summer season. The low grounds, however, subject to autumnal floods, are very liable to produce the rot in sheep, and although local inconvenience and loss occur in the lambing season, and that sometimes to a very considerable extent, yet a deficiency is by no means complained of in the ordinary crop of lambs, and which in common opinion are thought to number with the ewes at the time of shearing.

A scowering however has been known to seize the lambs in some parts of the chalk district, which coming on when the lamb is about two days old, is frequently attended with a quick and fatal issue. This disease seems most commonly to accompany such flocks as are in the highest condition at the time of lambing, and the ewes afterwards having a considerable flow of milk. No change from green to dry food, has a power of checking this disease, nor had any thing been devised to stop its progress, until the symptoms appeared with alarm, and some loss was sustained in the flock of Colonel Cunninghame, at Malshanger: this gentleman, ever watchful and attending to the minutiæ of a business he has altogether chosen for his amusement, observing the appearance of much inflammation in the stomach and intestines of the dead lambs, on the first symptom of the disease, immediately drenched both ewe and lamb with the following mixture, viz. 30 drops of laudanum, with five drops of the essence of peppermint, both mixed together, and diluted in an ounce-phial of water. Quantities in these proportions may be mixed up to any extent, according to the number of ewes and lambs that are to receive it; but it is to be observed, that a fourth part of the dose only is required for the lamb of from two to six days old, increasing the quantity at a later period of its growth, always administering to the ewe at the same time, and in the afternoon. The patients must be lodged warm and dry, and by no means interrupted in the drowsiness that will appear very soon after receiving the medicine: the undisturbed and quiet operation of which, should be preserved throughout the night. The ewe should be kept from green food the day following, and afterwards with a little wheat, bran, oats, or barley-meal, be gradually admitted to receive her usual quantity. Colonel Cunninghame has never found it necessary to repeat the dose, nor has it in one single instance failed of producing the desired effect.

The goggles is a disease sometimes, but by no means generally, complained of; it is so well known as not to require a particular description in this place. The means of its prevention is, in the opinion of many flock-masters and shepherds, to change the rams as frequently as possible.

SECT. III.—HORSES.

Although it is necessary in most parts of this county to have strong teams for carrying out the crop, performing long and heavy journeys upon the road, and for hauling chalk, marl, clay, &c. nearer home, yet among the larger sort of horses generally through the county, there is by far too much bone, and being often in low condition, they have too frequently a coarse, heavy, and uncomfortable appearance. Their average price at four or five years old, is little, if any thing, short of 30*l.* per head. A lighter and more active animal (particularly about home) would on many occasions answer a far better purpose. Not so light and insufficient as the small horses bred in vast numbers upon the heaths and forests, and which have not improperly acquired the name of heath-croppers; but the compact, active mould of the small Suffolk punch, or the common Norfolk plough horse, would answer an infinitely better purpose for most uses on the farm, and finally tend to hasten the step of the ploughman, which upon all occasions is equally slow, and apparently indifferent to whatever he may be about.

The ordinary height of the heath or forest horse of this country is about twelve hands. They propagate indiscriminately upon these wastes, where they seek their living throughout the year, and at four years old may generally be purchased for about 5*l.*

The greater number of farm horses in this county are kept in the stable the year round: in the summer they are fed upon green food mown, and carried to them with an allowance of about a bushel of corn per horse, and which is given to them with wheat or barley, chaff, cut straw, and hay; and this also forms their short meat in the winter time, but with a double allowance of corn. Their rack meat at this season, is either of white or blue pea, haulm, barley, or oat straw, but at Candlemas they are most commonly racked up with hay.

Upon a change from green to dry food, and the contrary, these animals are very subject to have swelled legs, but which complaint, a little opening physic, timely bleeding, and rowels, will always relieve and remedy. Their being over fed upon dry meat when warm, and permitting them soon after to take large draughts of water (an error which carters in general are but too liable to fall into), often brings on the disease called the fret, cholic, or dry belly ache, always accompanied with agonizing spasms, with which the animal very soon expires. The number of horses lost in this manner, particularly in the eastern division of the chalk district, is truly alarming, and seems to require the utmost vigilance and attention to prevent its continuance. Colonel Cunninghame has found the following management to give immediate relief, and always to bring about a cure. The diseased animal is first copiously bled, and then a common clyster is prepared of finely powdered Barbadoes aloes, one ounce, dissolved in four quarts of linseed decoction; this will either immediately relieve the animal, or facilitate the operation of back raking, should it be necessary, when the patient should be drenched with two table spoonfuls of laudanum, one tea-spoonful of the essence of peppermint, and about a double spoonful of ground ginger; the whole diluted in a quart of warm water. The animal should be kept warm, and frequently well rubbed during the time; fed for some days afterwards chiefly on mashes, and for a still longer continuance abstain as much as possible from every species of crude food.

SECT. IV.—HOGS.

The native hog of this county is a coarse, raw boned, flat-sided animal, agreeing in no respect with the idea entertained of it in other parts of the kingdom: the great number fed for a few weeks in the close of autumn, upon the mast which the forest and other woodlands produce, in the county, and the excellent mode of curing hog-meat practised by the housekeepers, have contributed in a far greater degree to establish that superiority ascribed to Hampshire bacon, than any inherent excellence in its native breed of hogs. Very few, however, of the genuine native hog are to be met with, the common stock being either the native Berkshire breed, or a considerable predominance of that blood in the native swine of the country.

Subsequent crosses upon the native Berkshire with the Suffolk and Chinese breed, have produced an animal of a hardy nature, prone to get fat at an early age, and always to keep in good condition in a store state. A very strong resemblance of the late Duke of Bedford's turtle hog was observed in some places; the most remarkable of which, were those belonging to Mr. Butter, of Liphook. The experiments made by this gentleman on this breed, show that nearly 100, that is, 96 lb. of bacon, may be obtained from the consumption of nine bushels, or 450 lb. of barley, equalling 4¼ lb.

of barley for one pound of bacon, and which, admitting the barley to be worth 1*d*. per pound, the bacon thus produced will cost, exclusive of attendance, 4½*d*. per pound. The barley reckoned at 4*s*. 6*d*. per bushel, including grinding, and the bacon at 6*d*. per pound in its green state, the account will stand thus:

	£.	s.	d.
96 lb. of bacon, at 6*d*. per pound, ...	£.2	8	0
9 bushels of barley, at 4*s*. 6*d*. per bushel,	2	0	6
Leaving a profit upon nine bushels of barley thus expended, of	£.0	7	6

Besides the dung and offal of the hog, which must well defray the expense of attendance, risk, &c. Other statements of the like nature were sought for on the Survey, but through the want of attention in ascertaining with correctness the lean weight of the animals before they were put up to fatten, and which should always be kept for 24 hours without meat or drink before weighing, and accurately stating the quantity and value of the feeding mess, with a corresponding time of abstinence previous to being weighed for slaughter, renders the farther statements collected on the Survey useless, and unworthy of a place in this Report.

On the present subject, however, the Surveyor will hazard a general opinion, that the Berkshire, Suffolk, or Chinese breeds, at an equal and proper age and condition, will lay on 10 lb. of bacon for every bushel of barley, after grinding into meal, consumed by them.

A dash of the Leicester breed for the use of large farming establishments, is getting into much repute, particularly in the Isle of Wight, where in general, as well as in other parts of the county, the fattened swine seldom exceed 18, and rarely arrive at 20 score; the greater part of which is used out of the pickle, there not being nearly so much bacon now made for home use as formerly. The pickled pork, when dressed, is always qualified with an abudance of vegetables, thus generally affording a very clean and ready exit from the trencher.

CHAP. XV.

RURAL ECONOMY.

SECT. I.—LABOUR.

THIS, in general, is very loosely performed; the regulations badly, or rather not at all enforced, as to the stated hours of work, or the proportion of labour required to be performed for making out day-work, and when not employed by contract. On the score of

SECT. II.—SERVANTS.

THERE is perhaps not so much to be objected, as must hereafter be noticed with respect to labourers. The exertions however of farm-servants are much within the limits of what we perceive done by the same description of persons in the eastern parts of the kingdom. The ordinary time and place for hiring farm-servants, are certain fairs and markets a little after harvest, and the usual time of removal to their new place, is about Old Michaelmas. When a bailiff and housekeeper are kept at the farm-house, their joint wages usually amount to forty guineas; thirty for the bailiff, and ten for his wife as housekeeper. The wages of the head carter are about eleven guineas; that of the head carter's mate, about nine guineas. When a boy supplies this place, in driving plough, and assisting to take care of the horses, his wages may be placed at 4*l*. or guineas. Second carter's wages about the same with first carter's mate; his boy or assistant, the same as the other man's boy. The teams generally consist of five horses, and when the head carter's mate is not employed in helping to feed and take care of the horses, or accompanying the team on journeys upon the road, he is usually employed in thrashing or helping to dress corn, gripping, fencing, or other jobs, about the farm. The thrasher receives about ten guineas per annum, and when more plough-teams are kept, the wages of the ploughmen and boys are generally regulated by their strength and qualifications, varying from 20*s*. to 50*s*. below the wages of the second carter and his boy. The day's work is usually performed in one journey of eight and an half or nine hours. The servants in these cases are all considered as boarding and lodging in the house. In the Isle of Wight, the head carter's wages are about 12*l*. per ann. with board and lodging, and that of his mate 10*l*. per ann.; second carter's wages as before, the same as first carter's mate, and second carter's mate about seven guineas; the third or under carter's wages about 8*l*., and the boy or mate in attendance upon him, 4*l*. One short candle of 14 to the pound, is usually given out each night to the different stables during winter. Thrasher's wages 12*l*. per ann.; hours of work in winter from light to dark; in summer, frequently from five in the morning to four in the afternoon, but more generally from six to five, with an allowance of half an hour at breakfast and at lunch, and an hour at dinner. These last regulations, however, apply mostly to the day-labourers, the servants generally continuing out with their teams from eight and an half to nine hours each day. The dairy-maid and cook's wages are about five guineas each; girls from two and an half to three guineas, with board, washing, and lodging; cow, crow, pig, and milk-boys, procured from the adjacent villages, and generally receive from 4*d.* to 6*d.* per day. The shepherd is generally a villager, who has 12*s.* per week the year round, besides perquisites, which usually attend his situation as butcher.

The beer generally prepared for farm-servants, and to which they have unlimited access, is brewed in the following proportions:—12 bushels of malt and eight pounds of hops, will make about 4½ hogsheads, or 243 gallons of beer, and give to it a sound keeping quality; five bushels of malt and 4 lb. of hops, will make one hogshead, or 54 gallons of ale, and the same quantity of small-beer, and of equal quality with that before-mentioned. The small beer may be broached when a week old, and the ale a month after. The head carter and his mate when carrying out the crop, or when any of the principal teams are on a journey upon the road, they have a quart of ale allowed per day for each person, with the small beer they usually take for their lunch or dinner.

The ordinary breakfast of farm-servants is bread and skimmed-milk, with the remainder of what bacon was left the day before: their lunch or noonchine, consists of bread and cheese, with the small beer they take in their kegs to the field. Their dinner is usually prepared between three and four o'clock, and consists of pickled pork or bacon, with potatoes, cabbages, turnips, greens, and broths, seasoned to the palate with a variety of garden-stuff and pot-herbs, thickened with wheat flour. The general bread corn is wheat: the remainder of the dinner, with bread and cheese, is given to them, with a pint of ale for supper, and the remnants, as before-mentioned, are eaten the next morning: this is their weekly diet, Sundays excepted, when they usually partake of whatever fresh meat may be prepared for the heads of the family.

SECT. III.—LABOURERS.

THERE is scarcely any part of this county that does not afford a temptation at no great distance, for withdrawing from the common labours of the field, the resident peasantry of its neighbourhood, and rendering a supply of labourers as uncertain, as on the most pressing occasions, they are difficult to obtain.

The peat meadows in Berkshire draw numbers from the north western parts of the county. The forests, wastes, and woodlands, allure many to task-work in such places, cutting wood and raising fuel. The saltings and fisheries on the coast offer employment for a number of hands during summer; a number are continually employed in the transport of timber from the woods to the canals, and other boatable waters; and to crown the whole, Portsmouth, and the other ship yards on the coast, afford a constant market for all the prime and picked labourers in the country, leaving little behind but feebleness and debility, to carry forward the common labours of the county.

This evil does not appear to rest here, for from the very high wages these people are capable of making at the task-work they are chiefly engaged in, they are able to dispense with the ordinary hours of attendance;

and thus an example of idleness is set to the more supine and inactive labourer at home, and who without corresponding exertions, thinks himself as fairly entitled to such indulgence as the younger, stronger, and more vigilant man. It was a matter of no small surprise, to notice in Devonshire, the labourer on his way home in the summer season at five o'clock in the afternoon. In this county the same thing may often be witnessed, from one to one and a half hour earlier in the day: in the winter season there are but few labourers that reach their work sooner than eight, or about an half hour after that time in the morning, and commonly quit work at three.

In the Berkshire peat-meads, a man, his wife, and two children, will readily earn a guinea a week the greater part of the summer season; and as the distance on the north-western side of the county, does not in some cases exceed two or three miles, this is often performed morning and evening,—a sort of gipsey encampment protects them through the night from the Monday to the Saturday. Temptations of a similar nature are afforded by the woods and forests along the sea coasts, and in the neighbourhood of many of the large towns, all of which contribute to a great scarcity of hands at particular seasons, and give rise to well-founded complaints among the farmers.

The stated daily labour through the county may be taken in the winter at 9*s*., in the summer at 12*s*. per week. The hours of work should be from light to dark, with half an hour for breakfast and an hour for dinner; and in the summer from six to six, with the same intervals or respite from labour. In summer time, when engaged in piece-work, the labourers will commonly be absent from their homes from five till seven, in which case they usually allow themselves half an hour to breakfast,

fast, one hour for dinner, and half an hour between four and five in the afternoon. In hay time, the wages of 2*s*. per day are continued, with drink and occasional eating. In harvest the same wages, with drink, board certain, and sometimes lodging at the farmhouse. The wages of women, and stout boys and girls, in these seasons, are about 8*d*. per day, the more feeble hands 6*d*., and allowance of beer to each. Thrashing and dressing wheat 3*s*. 4*d*. per quarter, barley 1*s*. 10*d*., oats 1*s*. 6*d*., pease 2*s*. 6*d*., beans 2*s*., tares 2*s*. 6*d*., no beer. Clover from 6*s*. 6*d*. to 8*s*. per bushel; reaping, binding, and shocking wheat, 9*s*. 6*d*. per acre; mowing barley 1*s*. 10*d*., pooking, or heaping and raking, 2*s*. 2*d*.; oats the same; mowing and wailing, or heaping pease, 4*s*. 6*d*.; mowing upland meadow 3*s*., water-meadow 4*s*., clean clover, clover, and other seeds, and sainfoin, 2*s*.; reaping, tying, and shocking beans, 7*s*. 6*d*. per acre, no beer. First hoeing turnips, from 6*s*. to 8*s*.; second hoeing, from 4*s*. to 6*s*. per acre, no beer. Thatcher 2*s*. 6*d*. per day, with board at farmhouse, or 4*s*. per square of ten feet, as before stated, and no beer or board. Grubbing coppice or hedgerows, when the roots are not piled into cords, 18*d*. per statute perch, or about 12*l*. per acre; when the roots are corded 5*s*. per cord, and 4*d*. per perch for breaking the ground, allowing upon these prices something extra for raising old moors, or the roots of timber trees, as well as for the larger stools of underwood; but as a difference often occurs in adjusting this allowance, the most common usage is to take all the large roots up by a particular contract, or at work by the day.

The common price of paring, burning, and spreading the ashes, is 35*s*. per acre, no beer; trenching two spit deep, when the labour of the pick or mattock is not required, 8*d*. per square perch. Rough gripping one spit, 1*d.*; when shovelled out, 1½*d.* per perch. Picking or gathering stones, 6*d.* per load of four heaps; the diameter of the bottoms of which must measure two feet six inches, that being the length of the stick upon which the heap is raised, and carried so high as the stones will lie (*i. e.* forming an angle of 45°). Washing sheep, 3*s.* per 100; shearing 2*s.* per score, besides beer and victuals.

It is a practice in some parts of the county to engage as many monthmen as are thought equal to the carting of the corn, without disturbing the hands that are employed in cutting it down by the acre. Any interregnum from harvest labour after the men come up, is employed in hoeing turnips, or any other work upon the farm (requiring to be done), and for which, as well as for the harvest labours, they are equally engaged. These men generally work from light till dark; and sometimes in catching weather, and when the corn is dry, several hours in the night: their wages about 14*s.* per week, besides board and lodging. In the Isle of Wight as well as in other parts of the county, the monthmen are always supposed to be engaged until the harvest is in, should it even continue for six weeks. The month's wages fluctuate between 2*l.* 15*s.* and three guineas, with board (and lodging, if required), and 2*s.* per day for every day employed in harvest work after the month is expired.

It has already been observed, that a much larger proportion of cottages appeared to be attached to farms in the Isle of Wight, than in any other part of the county, and which were found to answer a purpose equally advantageous to the cottager and the farmer, and that the appearance of these cottages contributed greatly to the embellishment of the country. This is a point of much importance in rural economy, the extension of which cannot be too strongly recommended to the landed proprietors of the kingdom, particularly such as (fortunately) may be equally desirous of promoting the comforts of the poor, as that of the permanent improvement of their estates.

The price of animal food through the county is much influenced by the London markets. Shambles meat however may be taken on a general average at 7*d.* per pound; pork and green bacon at 6*d.*; pickled pork about 6½*d.*; and cured bacon from 7*d.* to 8*d.* per pound; potatoes may be taken at 20*d.* per bushel of 75 lb.

The animal food chiefly consumed in farm-houses is pickled pork, and some cured bacon; with both a considerable portion of vegetables are dressed and served up. The universal bread corn is wheat, which is used as well among the peasantry as in farm-houses, and in the latter with the broad bran and coarse pollard only taken out. This economy prevails among the peasantry so long as their gleaning grists may last; but after that time, and that they resort to the shops and bakers in the neighbourhood for a supply, a much finer bread is always used and preferred among them. In some cases, however, it was found customary for all the employers in a parish to agree in supplying the labourers with wheat at about 6*s.* per bushel, and which has been carefully issued to the respective peasant families in the following proportions:—a man, his wife, and two children, half a bushel of wheat per week; where there are three children, two pecks and an half, and thus increasing half a peck per head to the number of six children; the parents of which would receive weekly one bushel of wheat at the price above stated: this regulation extending through the whole tithing, township, or parish, the poor's-rates become proportionably diminished, and the occupiers are reimbursed according to the extent of each farm and the number of hands that may be employed upon it; and which arrangement must bear equally, and equally remunerate all, provided that a tolerably even mixture of grass and tillage land prevails through the different occupations, and that there are no manufactures established among them.

The average price of grist, grinding, and separating the bran and pollard from the household flour, may be stated through the county:—wheat 6*d.*, barley 4*d.*, and oats 4*d.* per bushel. Barley however is only ground for hog food, and there are but few oats shelled or ground into meal in the country.

SECT. IV.—FUEL.

THROUGH all the woodland parts of this county, the peasantry are tolerably well supplied with fuel, and which is obtained by a claim they exercise pretty freely, of taking what is called *snapwood*, that is, all the fallen branches, and such as they can snap off by hand, or break down with a hook fixed in the end of a long pole: for this purpose they have been observed to visit most of the demesnes, and private as well as other woodlands through the county.

When this resource fails, turf pared from off the heaths and commons is easily obtained, as it may generally be purchased dry for about 6*s.* per thousand. These, in some parts of the county, the farmers bring home to the labourers, for so much of the ashes as the labourer may be able to afford, after manuring his garden, potatoe, or cabbage patch.

Peat cut and dried, affords another resource for fuel to the peasantry of the country. This usually sells at the pits for 9*s.* a heaped waggon-load, and which price covers allowance for beer, and the assistance given by the peat-men in loading the waggons.

A vast quantity of furze is also cut from off the heaths and commons, and which, like peat and turf to the labouring class, cost little more than a few days of timely and appropriate exertion; even the very centre of the chalk district is by no means destitute of this advantage, as most of the valleys and low grounds with which that country is intersected, afford a greater or less quantity of this fuel. Those parishes abutting upon the forests, have generally a right of turbary on such wastes; and here, as before observed, it is common for the farmers to bring home the labourers' fuel, but without any positive claim on the part of the farmer to the ashes such peat or turf may produce.

Bavins for heating the oven, and making a sudden but transient fire, are purchased in the woods and different parts of the county, so low as 6*s*. and so high as 15*s*. per hundred. Faggot-wood varies also from 12*s*. to 26*s*. per hundred: cord or billet-wood fluctuates greatly in its value in different parts of the county, it being sold in the woods from 15*s*. to 30*s*. per cord. This wood is however generally sold by the fathom, particularly in the southern parts of the county, the price of which varies as well from situation as whether it is made up for collier's use or market, from 3*s*. 6*d*. to 7*s*. per fathom.

The average price of coal at the sea ports, cannot be well taken at less than 42*s*. per chaldron; at the wharfs and coal-yards along the different canals, it will frequently be found advanced from 18*d*. to 20*d*. per bushel. But amidst all the variety of fuel in use through this county, there does not appear to be any circumstance in the general management of it, that merits farther notice, or would be deserving of imitation in other parts of the empire.

CHAP. XVI.

POLITICAL ECONOMY:

CIRCUMSTANCES DEPENDENT ON LEGISLATIVE AUTHORITY.

SECT. I.—ROADS.

IN general, good; some, the very best in the kingdom. To this general statement some exception must be made to parish roads, whether in the woodlands or the more open parts of the county. In the former situation their indifferent state may be more justly ascribed to their narrowness, and being overshaded with trees, than to any want of good and sufficient materials to make and repair them.

In the chalk district, the quarters of the parish roads are found so very high, and the ruts so deep, as to render it no less difficult than dangerous for loaded carriages to turn out of them. These quarters being formed of ground chalk and loam, accumulate by degrees, and acquire the strength and resistance of a rock; in no instance will they give way to the pressure of the wheels, however heavily weighted, or powerfully they may be drawn aside. The carriage therefore, however inconvenient, must proceed on with its load, until a crossroad, or some accidental break in the quarters, ad-

mits

mits the team or pleasurable carriage, that may be once in such a track, to withdraw out of it with safety.

The public or turnpike roads are, however, no where better than what may generally be met with in Hampshire: materials of an excellent quality are to be had in most situations, though on some occasions, if it were posible to give to the round pebbly gravel, by the admixture of a small portion of chalk or loam before it is applied, a more binding quality, there is no doubt but far greater advantages would be derived from the immediate use of it: the roads would stand better, and upon the long run would prove less expensive, much lighter of draught at all times, and far more durable.

Nothing can possibly exceed the goodness of the roads through the New Forest, and the southern parts of the county. It is no less true than strange, to say that the traveller may pass from Lymington to Christchurch, and thence to Salisbury, without a turnpike, and all the way upon parochial roads, which may vie for goodness with the best turnpikes in the kingdom. Neither are there turnpikes in the Isle of Wight, yet the convenience of travelling through that highly favoured spot, is not to be surpassed in this respect by any part of Britain. These advantages and conveniences are not less owing to the goodness and abundance of materials, than to the attention bestowed on them by the resident country gentlemen, and the respectable tenantry of the country, by the enforcement of a regular, timely, and judicious performance of the statute labour, which, executed in procuring the most suitable materials, and applying them under the direction of the judicious waywarden upon roads properly formed (with good and sufficient sides or bulwarks to prevent their bulging out), effects every thing which on such occasions may be worthy of imitation in other places.

SECT. II.—CANALS.

Out of the three distinct lines of canal which originate in this county, there are two that terminate in the Southampton river. Besides the objects of improvement connected with these canals, the Kennet navigation, leading from Newbury to Reading, is thought to have produced considerable advantages to the north-western side of this county.

The Basingstoke Canal, however injurious to many estates through which it passes, and fraught as it may have been with disappointment to many of the first adventurers, is yet regarded as a valuable acquisition to the northern parts of the county.

The Redbridge and Andover Canal affords considerable advantage to the interior country, by bringing to it the foreign supplies of the most heavy and bulky nature it may require, and facilitating the surplus of its agricultural produce to market; yet along the valley of the Teste many inconveniences were witnessed by the penning of the water, to the injury of the low grounds through which the canal passes. From Redbridge there is a branch of this canal which connects immediately with Southampton; a collateral branch also proceeds up the valley between East Dean, Leskerly, and East Tytherly, which is navigable to Alderbury Common, and within two miles of Salisbury.

The Winchester and Southampton Canal is perhaps one of the most ancient in the kingdom. The act for constructing this canal was obtained in the reign of Charles the First, but from the want of a suitable trade upon it, however advantageous to the city of Winchester and the surrounding country, it does not seem to have answered the expectations of the first adventurers; the same, indeed, may be stated of the Andover Canal, which is not supposed to have paid one shilling to the proprietors since its first establishment, now about nine years ago. The inconvenience and disappointments which may hereafter be expected to result from similar undertakings in different parts of this united empire, may, it is presumed, be much diminished by improvements of a similar import in

Tram-roads, or Iron Railways—But of which (perhaps unfortunately) there are not any at present in the county.

SECT. III.—FAIRS.

THE most important fair in this county, or perhaps any where in this united kingdom, is that of Wey-hill, near Andover. The absence of Mr. Gawler, deprived the Surveyor of procuring a statement of the business usually transacted at this fair, which begins the 10th of October, and continues the five following days. The number of sheep, cows, and horses, of tons of hops and cheese, bought and sold during the continuance of the fair, would at least have proved a curious if not useful enquiry.

A number of gentlemen have lately associated for the purpose of exhibiting five tods of wool each (*i. e.* 140 lb.), the growth of their respective flocks, at Magdalen fair, near Winchester, and which is held the 2d of August: this has excited much emulation among the wool growers of the county, and must have a tendency to draw the wool buyers to such a meeting, and whom it is much desired would be more frequent in their attendance at fairs and markets than they now are.

SECT. IV.—MARKETS.

WITHIN the county, and at no great distance from its eastern and western borders, there are some of the best corn and cattle markets in the kingdom. These places generally afford opportunities for obtaining the best times price for all sort of agricultural produce, and at the same time exhibit assortments of manufactured goods, in all the variety of home or foreign taste, for domestic consumption.

It has been already observed, that in conversation with strangers, much confusion will sometimes arise on the subject of the acreable produce of the neighbourhood, and which is owing to the vague and indefinite quantity of a *seed acre*, which in some places as much exceeds, as in others it falls short of the legal standard. All corn, however, is measured by the Winchester bushel; liquid measure is much the same as in other parts of the kingdom; timber is universally spoken of by the load of 50 cubic feet; wool weight is always by the tod of 28 lb.

Political

Political Character of the principal Towns in this District, Seat, and Circumstances of Manufactures and Commerce, Fisheries, Agricultural Societies, &c.

Kingsclere derives its name from being formerly the residence of the Saxon kings: it is situated in the woodland, or first District in this Survey, and on the margin of the chalk hills, which extend westwardly from Tukesbury-hill, in Surrey, by Odiham, through the Shirborns, Burghclere and Highclere, into Berkshire. The chapelries of Itchingswell and Sidmonton are annexed to the church of Kingsclere. Its principal trade is in the malting business, which, with a number of fat calves weekly slaughtered, are chiefly destined for the London market: it has, however, a market of its own, which is held every Thursday; and has two fairs, the one on the 7th of April, the other the 13th of October. Its distance from the metropolis is about 56 miles. A remarkably fine spring rises a little above this town, which supplies the mills situate on its banks, and at no great distance from its source. Some various ancient and curious fortifications of both Roman and Danish character, are to be seen upon the chalk downs south of the town, as well as at Silchester, which lies a few miles north-eastwardly from Kingsclere.

Odiham had once a royal palace and castle, which in King John's time was defended 15 days by only 13 men against the army of the barons. Here David King of Scotland was kept a prisoner. This town is the native place of the famous grammarian Lilly: there are still to be seen several vestiges of its former greatness: Queen Elizabeth's palace, the king's barns, &c. exhibit proofs of its former importance. It has a weekly market that is held on the Friday, and two fairs, one on the 7th of March, the other the 31st of July: it manufactures malt, leather, some coarse woollens, and fine linen; and is situate about 42 miles from London. In this District there is also a fair held at Blackwater the 8th of November; two at Eversley, one the 16th May, the other the 18th of October; at Heckfield also there is a fair held on Good Friday.

The wet hungry loams which occasionally pervade the heaths of Bagshot, Farnborough, Cove, and Aldershot, being very retentive of water, and of little value in their native state, are to a small extent converted usefully by dams, which are raised across the low places and hollows of such wastes, which being well puddled through the centre to the foundation, afford good and sufficient mounds for stopping the spring and surface waters; and thus ponds of considerable extent are made, and so far as they go, are a profitable appropriation of such wastes. These ponds are usually stocked with carp and tench, and if the bottom of the pond proves deep and muddy (and it is rarely to be found otherwise), five acres of such water will support 1250 brace of carp and tench with their increase, until the old or stock are grown for market, and amount to an average size of 2 lb. per brace, and consequently weigh 2500 lb., which at *9d.* per pound, the price such sort and size commonly sell to the trade in London, will amount to *93l. 15s.*, the value of five acres of land so employed for three years; besides the stock or store fish so bred and obtained reduced to their former number when the pond is again filled, and which will far exceed in value the first cost and trouble of procuring such fish, with whatever expense may have accrued in drawing the ponds, keeping the dam and sluices in repair. The value of merchantable fish thus annually obtained per acre, will be found to amount to about six guineas, and admitting that one-third only of this sum is required to pay the interest of the money laid out in forming the dam, with carriage to and commission in London, it is surely an object of some moment, and deserving the investigation now bestowed upon it.

An Agricultural Society was established at Odiham in the year 1783; but of late years the objects of this institution appear to have been little attended to. The navigable canal from Basingstoke to the river Wey, passes near this town.

The area of this District, its population, parochial levies and disbursements, and friendly societies, of the respective divisions, towns, parishes, tithings, or precincts comprised within its boundaries, and applicable to the remaining enquiries demanded in this Chapter, will be found in the following Table:

6	7
1½	7
0	10
0	
5½	4
2½	7
3	4
4	4
0	8
0	2
0	6
0	5
0	8
9	2
7½	1
3	5
0¼	6
0½	6
0¼	5
4	11
3	2
0	4
5	4
105 3	3

8. In
9. In
0. T
E. A
F. A
N. T
C. T
* T

y the

This District, which contains 40 parishes, towns, or tithings, being divided into eight rectangular figures, and their contents duly cast upon Faden's large six sheet map of the county, laid down by a scale of one mile to an inch, is found to contain an area of all descriptions of land of 103,944 acres, equal to $162\frac{4}{10}$ square miles; and which extent of country, from the sum of its population, it appears to carry about $111\frac{1}{3}$ inhabitants to each square mile of 640 acres.

It is much to be regretted, that the three columns under the head of Occupation, whence this information was derived, were in the seven cases occurring within this District, so extremely incorrect as to preclude their being summed up in the table, and carried forward to the abstract.

It appears that the sum of 20*s*. 2*d*. is annually levied per head on the amount of the resident population of this District for parochial expenses, and that 16*s*. 9*d*. of this sum is exclusively disbursed on account of the poor: the remaining 3*s*. 5*d*. being employed for other purposes, church, highway, militia, country rates, &c.

DISTRICT II.

The towns in which more or less commerce and manufactures are carried on, and lying within this District, are as follow:

Alton—Situated on the river Wey, and in a country, the natural interest of which is much increased by the number of hop-grounds that surround it. Its manufactures are various; they consist of plain and figured barragons, ribbed druggets, and serges de nesmes. The white yarn trade is carried on to a considerable extent, and likewise an increasing manufacture of Valentia tabinets, and a variety of worsted articles dyed in their wool, and much esteemed for their superior quality. Bombazines for women's mourning are also manufactured here, and in the neighbourhood, but dyed and dressed in London: this branch may be considered as stationary. A manufacture also of silk and worsted tabbyreens, chiefly for the American market, is now reviving, but still upon a small scale. This fabric is usually sent to Philadelphia, where, as well as in many other parts of the United States, it is much worn in summer by the town and country gentlemen. The worsted yarn above-mentioned is spun at Alton, and within a range of ten miles round. This is commonly spun in skeins 480 yards in length, of a fineness from thirty to fifty skeins in the pound, and cost from 15*d.* to 30*d.* per pound, affording constant employment to all the female peasantry in the country, when not otherwise engaged.

In the house of industry there are about twenty looms for weaving calicoes of about three-fourths of a yard in width, and running from 16*d.* to 18*d.* per yard, retail price. The length of each piece is 28 yards, and usually weighs about 8 lbs. each. The labour performed in this establishment clears the clothing of from 80 to 100 men, women, and children, and supplies a small surplus, which is applied in paying the interest of the capital and its gradual liquidation. The expense of maintenance in the house per head, is found little short of what is required for the support of the out-door poor.

A sacking manufactory, and a mill for spinning cotton candlewick, are also established in this neighbourhood, but both on so very small a scale, as not to require any farther notice in this place. There are two fairs held at Alton, the one on the Saturday preceding the 1st of May, the other on the 29th of September. It has a market every Saturday, but the sale of corn, which is by sample, seldom comes on till towards evening: its distance is about fifty miles from London.

Alresford—Has only a small manufacture of linseys, but even this is scarcely worth notice. Part of a Roman highway leading from this place to Alton, forms the mill-dam, hereafter to be further noticed. The pond thus formed appears to have been much larger formerly than it is at present; it is stated to have extended from the present mill-dam (over which the road leads from Old to New Alresford) to a palace of the Bishop of Winchester, then standing at Bishop Sutton.

A navigation formerly existed between this place and Winchester, at which time the trade of Alresford, then a large and populous town, was much benefited by it. This navigation for a great length of time has reached no higher than Winchester; a plan, however, has lately been agitated, of joining the Basingstoke Canal with the Winchester navigation by a communication through this place.

New Alresford is governed by a bailiff and eight burgesses, and formerly sent one member to parliament, but the charter of the town is now said to be lost. It has three fairs in the course of the year: Holy Thursday, the 30th of July, and the 15th of October:

its market is on Thursday; and its distance from London about sixty miles.

Basingstoke—Is situated at the distance of about 47 miles from London. Its manufactures chiefly consist of malt and leather: a manufactory for druggets and shalloons was formerly carried on in this neighbourhood, but which of late years is stated to have gone very much to decay. This is a town corporate, consisting of a high steward, mayor, recorder, seven aldermen, seven burgesses, and two serjeants at mace. The canal lately finished from hence to the river Wey, opens a water communication with London, and whatever may have been the issue of the expectations formed by the first adventurers in this undertaking, certain it is, that the navigation has already proved of considerable advantage to the town and neighbourhood, as well as all the country within reach of those conveniences it so eminently affords.

Upon the downs near this town a bloody battle was fought in 781, between the Danes and Saxons. Old Basing is celebrated for its fortress, which in the time of the civil wars belonged to the Marquis of Winchester, ancestor to the late Duke of Bolton. It was garrisoned by a resolute band of soldiers under the command of the Marquis, which greatly restrained the depredations of the Parliament party on the high roads. It was taken, and the brave Marquis in it, by Cromwell, who in revenge put almost all the garrison to the sword, and burnt the noble fabric to the ground.

Overton.—There is a silk-mill of considerable magnitude at this place; it is worked by water, and affords constant employment for a great number of women and children. The steady and uniform motion produced by a water power, is peculiarly adapted to the turning and winding the fine tender threads of silk imported from the Levant and East Indies. This branch of preparing the silk for manufacture, is not carried on to the extent formerly, and of which the mill and machinery are capable, but which is expected to be resumed on the termination of the war.

In this part of the county the young female peasantry seem much employed in the brading or platting straw for hats and bonnets. This they perform with much facility and neatness, and in every respect equal to the celebrated manufacturers of these articles at Dunstable.

The paper-mills in the neighbourhood of Overton, are of high importance in a national point of view, particularly that which is employed in making paper for the notes of the Governor and Company of the Bank of England. This mill formerly employed only one of its vats three months in the year; at present there are two vats constantly employed the year round. There are two paper-mills belonging to the same proprietors on this stream (*i. e.* Teste or Anton river): these afford eight vats for the manufacturing of paper, from the size and quality of bank-note to that of royal atlas. These require the constant attendance of about sixty men and women throughout the year. The average earnings of the men are stated at about 22*s.* per week; that of the women at day-work 7*d.*, but when employed by the piece (and which is the more usual practice), from 9*d.* to 10*d.* per day. There is generally one apprentice, son to one of the established workmen, attached to each vat, and these are all the apprentices allowed. It is somewhat remarkable, but the workmen at these mills keep holiday all the red letter days, and for which they are paid their ordinary day-work hire. There are four fairs held at Overton in the course of the year: May 4th, Whit-Monday, July 18th, and October 22d: the market day is Monday. It is distant about twenty-six miles from London.

Whitchurch—Is a borough by prescription, and first sent members to parliament the 27th of Queen Elizabeth. Properly speaking, here is no corporation, though a titular mayor is annually chosen at the court leet of the Dean and Chapter of Winchester, and who are lords of the manor: it returns two members to the Imperial Parliament. The right of election is confined to freeholders of certain lands and tenements within the borough, in right of themselves or their wives, and which have not been divided or increased since the act of the 7th and 8th of King William. The returning officer is the titular mayor.

The former manufactures of this borough, which consisted of shalloons, serges, &c. are stated to have been much affected by the war, but which, like most of the other manufactures of the county, are expected to revive again on the return of peace. This place has four fairs in the course of the year, viz. April 23d, June 17th, July 7th, and October 19th: it has a market every Friday, and is distant about 58 miles from London.

Andover (*i.e.* over the river Ande).—This place was well known to the Romans, who had encampments upon Quarley and Bre Hill. It was called by the Saxons, Andeafaran, and afterwards became the residence of King Ethelred.

The corporation of this town assumed the exclusive privilege of electors, and which obtained the sanction of a resolution of the House of Commons 1st April, 1609, and was afterwards confirmed 28th January, 1702. This corporation received its first charter from King John, but was last incorporated by Queen Elizabeth: it consists of twenty-two capital burgesses, from amongst whom a bailiff and two other magistrates are annually chosen, and twelve assistant burgesses; they have also a high steward, recorder, and town clerk. This borough sent burgesses to all the parliaments of Edward the First, and also the first of Edward the Second: these ceased sending until the 27th of Elizabeth. The right of election is in the bailiff and the above selected number (twenty-four) of the burgesses only: returning officer the bailiff.

The manufacture of malt in this town is considerable, but its former staple of shalloons is represented as much on the decay. The female peasantry in the surrounding country appear to be very much employed in spinning yarn and worsted for the manufactures at Salisbury. A canal passes from this place through Stockbridge and Rumsey to Southampton. A junction has been proposed between this canal and the navigation at Basingstoke, and which, conducted through the Teste and Anton vallies, would appear a less arduous undertaking than the communication before mentioned between the Wey and the Itchen rivers. The fairs held at this town are on Midlent Friday and Saturday, May the 13th and November 17th and 18th: its market day is Saturday, and is distant from London about 65 miles.

Stockbridge.—This borough has been long famous for wheelwrights and carpenters. It sends two members to parliament, having first sent, the first of Queen Elizabeth; being a borough by prescription, it has no corporation, but is governed by a titular bailiff, the returning officer, constable, and serjeant at mace. The right of election is in the resident housekeepers paying scot and lot, and amounting to about 60. It has three fairs, one on Holy Thursday, another on the 10th of July, and one other on the last Thursday in October: its market day is Thursday. Distant 66 miles from London.

Broughton.—This is a small market town, in which there is nothing particularly requiring notice, than that it has a weekly market, and a fair the first Monday in July.

Winchester.—This city is distant from London by Basingstoke 62 miles three furlongs, and by Farnham 65 miles two furlongs. It is of great antiquity; is situate on the river Itchen, and called by the ancient Britons, Caer Gwent; by the Romans it was known by the name of Ventam Belgarum, and in it was manufactured cloth for the Roman emperor and army, as also sail-cloth, and household linen.

In the time of the Saxons, though pillaged more than once, it was a royal city, and the residence of several kings: here a monastery is said to have been founded by Lucius, the first christian king of Britain, in the year 189; but which was destroyed in the persecution under Dioclesian about the year 266; and rebuilt by Diodatus the abbot, in honour of St. Amphibolous. About the year 300, Cerdic, king of the West Saxons, drove away the monks, and converted the church into a pagan temple. Ethelstan granted the city the privilege of six mints.

The church was originally founded by Kingegulfe, one of the kings of the Mercians, whose son in the year 663, translated the see of Dorchester to the monastery said to be founded by Lucius; and although the diocese of Shirborn was afterwards taken out of it by King Ina, yet it became so rich, that when Edward III. offered to promote his favourite Edendon, who was then bishop, to the see of Canterbury, he refused it, saying, "Though Canterbury was the highest rack, Winchester was the better manger." In this reign William of Wickham, whilst he was bishop, obtained some privileges and immunities for the see, such as that the Bishop of Winchester should be Chancellor to the Archbishop of Canterbury, and Prelate of the Most Noble Order of the Garter.

The deanery is a handsome building, with large gardens, but subject to be overflowed by the river Itchen, which runs through the middle of them.

Near the Bishop's palace is the College of St. Mary, commonly called Winchester College: it was founded and endowed by that munificent prelate and able minister, William of Wickham, and is one of the noblest foundations for grammar learning ever established by any subject in Europe. The building, which is of stone, was begun in 1387, and completed in 1393. The foundation consists of a warden, ten fellows, three chaplains, three clerks, a schoolmaster, usher, organist, sixteen choristers, and seventy scholars. The college consists of two courts, and in the centre is a noble Gothic chapel, near to which are the schools with handsome cloisters, and behind that a large piece of ground where the scholars play. When in the hall where they dine, the scholars wear black gowns, but when they attend divine service in the chapel, they are dressed in white surplices. All the scholars have access to the library, under the permission of the master or usher; after a certain number of years they are sent to finish their studies in New College, Oxford, also built by him.

The present cathedral was begun in the 11th century by Bishop Wakelyn, who built the town, choir, transcepts, and probably the west end; Bishop Edendon undertook to repair the nave, but Bishop Wickham entirely rebuilt it in 1394. To the great honour of William of Wickham, there is to be added the New College, Oxford, and which with the truly noble foundation before-mentioned, will remain everlasting monuments of his piety and munificence.

To the eight parochial churches which are contained within the city of Winchester, is to be added St. Bartholomew's, at Hyde. On the north side of the cathedral, is a college founded by Bishop Morley in 1672, for ten clergymen's widows. Christ's Hospital, commonly called the Blue Arms, west of the cathedral, was founded in 1706 by Peter Simonds. Here are also a variety of private charities, and three charity schools.

King John resided much in this city, and his son Henry III. was born here, as were also Arthur, eldest son of Henry VII., and William Duke of Saxony, from whom the present Royal Family of Great Britain descended. Henry the Fourth was married here, as was Queen Mary to Philip King of Spain. In the year 1112, the king's palace and a great part of the city were destroyed by fire, which, with the plague that has twice visited this city, are commemorated by inscriptions on an obelisk at the west end of the town.

About the year 1215, the river Itchen was brought into a regular channel, and made navigable by Godfrey De Lacy, Bishop of Winchester. In 1759, a public infirmary was erected. A new county jail was built in 1788, on Mr. Howard's plan. In the prison court is a neat chapel. The county bridewell was built in 1785: here is also a city bridewell; and a new theatre was built in 1785 also. It may be worthy of remark, that theatrical representations were first introduced into England by Geoffery, prior of St. Swithin's, Winchester, in the year 1556.

Under the Romans, Winchester increased, and became the depository of the public records; it suffered considerably in the wars between Stephen and the Empress Matilda: the latter being besieged in the castle by the former, to escape being taken, was carried out in a coffin. This castle is, by tradition, ascribed to King Arthur, and where it is said the Saxon Kings kept their court. Here William the Second, surnamed Rufus, was crowned. In the civil wars of the seventeenth century, it was taken from Charles the First by Sir William Waller, and was afterwards demolished, except the old hall, a magnificent building, in which the assizes are held. In this hall also hangs what is called Arthur's round table, with the names of the knights upon it. On the scite of the old castle a royal-palace was begun, March 23, 1680, in the digging for which they found a pavement of bricks, and coins of Constantine the Great. The principal floor is a noble range of apartments 20 feet high. It has been fitted up as a war prison, and contains no less than 160 rooms, capable of affording comfortable accommodation to 5000 prisoners of war.

Winchester appears to have been the first place in the kingdom incorporated by a free charter: it is governed by a mayor, high steward, aldermen, and recorder, and sends two members to Parliament, chosen by the corporation and free burgesses: the number of voters are about 140, and the returning officer is the mayor.

A number of parishes are consolidated under Gilbert's Act, and have established a work-house at Winchester. This institution is by some objected to, on account of the unwillingness manifested by the parents in parting with their children, who, it seems, are chiefly instructed in winding silk and in preparing hemp and flax, for the manufacture of canvas carried on in this city. It is urged, that children thus instructed, can be but little qualified for the more hardy avocations of the field, and which often prevents parents applying to parish-officers for relief, from an apprehension that such application would subject their children to be removed from them; the dread of which occasions much distress and hardship to be endured in many peasant families, rather than consent to an alternative so extremely painful to them. How far these complaints, which have been patiently listened to by the Surveyor, are justly founded, it is impossible for him to say; but if it is true, that parents are thus compelled to surrender their children to the pursuit of an employment they consider as unhealthy or unworthy of them, it is surely an exercise of power, which neither the constitution or existing laws of this country will seem to authorize.

Although the sacking and canvas manufacture are carried on to some extent at Winchester, yet the great drift of manufacturing exertion in that city, is made in preparing the raw material, and working in the making of light fabrics of silk. This material is imported in its raw state from Bengal or Italy, and where it is wound from the cocons into the threads imported. In this operation, it is conceived that a certain proportion of sise or glutin is dissolved in the water out of which the cocons are wound, and which it is found necessary to discharge before dyeing, by boiling it in soap and water, and which generally reduces the silk from its imported to its pure state about 25 per cent.; the duty being paid upon the imported quantity, viz. Bengal 7*s.* and Turkish or Italian 11*s.* per pound. To remedy which, and in some measure to guard against a precarious supply in future, would it not be advisable to attempt the culture of the white mulberry in every part of the European dominions of this empire, where the soil and climate are favourable to the purpose, and for doing which we have many notable examples before us, in the different parts of the United States of North America, and where the winter climate generally is infinitely more severe than any thing ever experienced in the southern parts of this kingdom?

The number of hands employed in preparing and winding silk by one house only, in Winchester, is about 300. The weaving is also carried on to a considerable extent; but whether in the throwing or weaving departments of the business, the children employed appear equally, as to health, contented, and as happy as those in the occupations of rural life. The gentlemen principally engaged in this business carry it on with considerable spirit: the velvets appear well finished; and the lighter kinds of silks, of which there are large quantities made for the use of the umbrella manufacture, are equally well finished and in great demand. The manufacturers however make lamentable complaints, as well of the increasing scarcity of the Levant silk, as of the very high duty imposed upon its import.

The fairs held annually in this city and its neighbourhood, are on the first Monday in Lent; Magdalen-hill fair, August 2, and another fair on the 24th of October: its market days are on Wednesday and Saturday.

The area of this District, its population, parochial levies, and disbursements, and the friendly societies of the respective divisions, towns, parishes, tithings, or precincts, comprised within its boundaries, and applicable to the remaining enquiries demanded in this Chapter, are stated in the following Table.

49	11	10¼	224	5	0¾	—	—	2
6	5	4	137	19	11¼	—	—	—
56	19	8	739	11	3¾	—	—	—
150	11	1	1335	10	6	1	60	—
18	7	3	269	8	7½	—	—	—
7	13	0	63	1	0	—	—	—
22	17	7	87	4	11½	—	—	—
20	17	0	256	18	4½	—	—	—
67	9	8¼	381	16	0½	—	—	—
75	10	4	267	18	0	—	—	—
57	4	9	244	15	3	—	—	—
21	8	0	159	12	10	—	—	—
22	4	0	254	4	0	—	—	—
41	6	8½	95	17	4½	—	—	—
32	4	7	504	9	7½	—	—	—
181	14	4	1038	8	6½	—	—	—
32	18	6	242	11	11	—	—	—
57	5	4	258	4	7	—	—	—
21	9	0	221	0	0	—	—	—
11	5	0	71	8	9	—	—	—
40	3	1½	456	18	3¾	—	—	—
24	0	6	250	3	5	—	—	—
15	6	6	341	4	10	—	—	—
	—			—		—	—	—
11	6	6	118	18	0½	—	—	—
39	5	4	1260	5	5	—	—	—
5	13	4	144	10	11½	—	—	—
2377	13	9	£.23,391	9	0	2	72	74

; in consequence, the poor's-rate is not so high

earnings.

and acres of land, and is chiefly occupied by
se. The old and infirm are relieved at their
hey spin for different manufacturers. In the
success of it, they gave the children the whole
and amounts to about 60*l*. per ann. But it is
e *children* to habits of industry. The children

of the respective divisions, towns, parishes, tithings, or precincts, comprised within its boundaries, and applicable to the remaining enquiries demanded in this Chapter, are stated in the following Table.

DISTRICT III.

Petersfield.—This town is situated at the upper end of a valley, formed by chalk downs, and the heaths of Woolmer forest and its appendages; a small branch of the river Loddon heads up to, and a little above the town. This borough was incorporated by Queen Elizabeth, and is governed by a mayor and commonality: it first sent members to parliament the 35th of Edward I. but ceased until the time of Edward VI. and now continues to send two members, the right of whose election is with freeholders of lands or ancient dwelling-houses, or shambles built upon ancient foundations within the said borough: number of voters 154; returning officer, the mayor.

This is a very considerable thoroughfare from London to Portsmouth, but unless in the articles of matting, brewing, and turnery, there was not understood to be much trade or manufacture carried on. There are two fairs kept in this town, one on the 10th of July, the other the 11th of December: its weekly market is held on the Saturday, and is distant about 54 miles from London.

The parishes of Headley, Kingsley, and Bramshot, are incorporated in a house of industry, for the support and maintenance of their poor; an arrangement that is much objected to, on account of this institution being far more expensive to the associated parishes in that house than they would have been out of it.

The area of this District, its population, parochial levies and disbursements, and the friendly societies of the respective divisions, towns, parishes, tithings, or precincts, comprised within its boundaries, and applicable to the remaining enquiries demanded in this Chapter, are stated in the following Table.

DISTRICT

This District divided five rectangular figures, and
eir contents summed up, is found to cover an extent
49,525 acres, including, with other waste lands, the
ests of Alice Holt and Woolmer forests, and where
crown lands amount to 8694 acres. The gross
a equals $77\frac{4}{10}$ square miles, and which, from the
m of its population, appears to carry $89\frac{8}{10}$ souls to
ch square mile. There being four out of the eigh-
parishes and tithings composing this District
ich are inaccurately returned in the columns of Oc-
pations, precludes these columns from being summed
, and their amount carried forward to the general
stract.

The sum annually levied per head for parochial
on the whole amount of the population of this
strict, is 20*s*. 9*d*., of this sum there is 17*s*. 4*d*. ex-
sively applied for the support and maintenance of
poor, the remaining 3*s*. 6*d*. raised per head per an-
is applied for such other parochial uses as have
before noticed.

DISTRICT IV.

msey.—This town is divided into two parishes,
and *infra*, between which there is only one
rch, and which still remains a fine specimen of
architecture—built in the form of a cross, and
ed with stone. There is now growing on the top
the church an apple tree, which often produces dif-
nt kinds of fruit, viz. red streaks and golden pip-
s. This is a town corporate, governed by a
yor, recorder, six aldermen, and twelve capital bur-
ses.

Its principal manufactures are in sacks and sacking,
per, malt, beer; of the latter vast quantities are

made, and held in high request for a great distance through the county. The manufacture of shalloons, which formerly flourished to a great extent in this town, is so far gone to decay, that 20 looms are now difficult to be found where there were formerly 200. There are three fairs held here in the course of the year: one on Easter Monday, another August the 26th, and the last on the 8th of November: its weekly market is held on the Saturday; and is situate at the distance of about 77 miles from London.

Fordingbridge—Is a small market town, situate on the river Avon, and stated to have been much larger formerly than it is at present, having frequently suffered by fire. This town is not incorporated, but is governed by a constable annually chosen at the court leet of the lord of the manor.

The principal manufacture at present, and for many years past carried on in this town, is the striped bed ticking. The chain or warp of this fabric is spun and bleached at home; the abb, or shoot, is imported from the Continent in its brown state, and is bleached altogether in the meadows lying along the river and adjacent to the town. The blue colour is given to the yarn in its unbleached state; and this forms alternate stripes of blue and white in the warp, which is about 75 yards in length, and contains from 2000 to 3000 threads: the shoot is all white, and when finished from the loom the web will measure about 70 yards, weigh from 40 lb. to 50 lb., and sell to the wholesale dealers in London from 20*d*. to 3*s*. 6*d*. per yard. This manufacture has flourished in this town for a long period of time, but its principal increase has come on within the last 50 years, and notwithstanding the war, there does not appear to be any material abatement in the demand or orders for this article. The number of people employed in spinning, bleaching, weaving, dressing, &c. are estimated at about two-thirds of the whole inhabitants.

A factory has also been lately established about a mile above the town, for spinning woollen and cotton yarn, and which seems to be carrying on with considerable spirit. The machinery of this factory is driven by water taken up by an eddit from the Avon river. The establishment affords great prospect of success, as well as the means of employing a number of women and children in the neighbourhood. There is one fair held at this town annually, on the 9th of September; its weekly market is on the Saturday. It lies at the distance of about 90 miles from the metropolis.

Ringwood—Is situated on the east side of the river Avon. In the time of the Saxons it was a place of much eminence, and at present commands one of the best weekly corn markets in the county, which is held on the Wednesday: it has also two fairs, one on the 10th July, the other on the 11th of December. It carries on a manufacture to some considerable extent in knit worsted stockings, and has been long celebrated for the excellence of its beer, large quantities of which are transported through the surrounding country, and conveyed by water to Christchurch, whence it is shipped coastwise to Portsmouth, Poole, or wherever there may be a suitable market for it. There is also a tolerable trade here for leather, druggets, some red ticks, and narrow cloths.

Near this town the Duke of Monmouth was taken by one Perkins, as he lay hid in a ditch covered with fern, July 1685, after he had been defeated at the battle of Sedgemoor.

Christchurch.—The ancient name of this town was Tweenambourne, from its being situated at the confluence of the Avon and Stour rivers. Its present name is from a collegiate church built in the time of the West Saxons, first called Trinity, afterwards Christchurch, and in which there are still to be seen numerous remains of sepulchral monuments of great antiquity and beauty.

The river Avon, which here falls into the sea, was made navigable in 1680. This town is famous for a salmon fishery*, and is thought to be the first place in England for knit silk stockings. The knitting of worsted hose is also carried on to a considerable extent, as is also a watch-chain manufactory, which enables the poor in this place, as well as in many of the adjacent villages, where it is also carried on with much spirit, to earn a very comfortable subsistence. A straw hat manufactory contributes also very essentially to the same end.

This port lying within that of Southampton, the state of its shipping interest and exterior commerce must necessarily, with that of Lymington, be included in the account of the port of Southampton generally.

Christchurch had once a strong castle; and first sent members to parliament the 13th of Elizabeth; for although it was summoned for this purpose the 35th of

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* Vide Mr. Willis's Report.

Edward the First, and the 2d of Edward the Second, the bailiff made no return to either precept.

The right of election appears to have been formerly vested in the inhabitant housekeepers of this borough, but at present assumed and exercised by the corporation exclusively, and which consists of a mayor, recorder, alderman, bailiffs, and common council, making the number of voters twenty-four, and the returning officer the mayor.

An Agricultural Society has been established at Christchurch since 1795; its aim is to promote industry and emulation among the rural inhabitants, generally to further every thing that may lead to the improvement and prosperity of the neighbourhood, and consequently to the public good.

Lymington—Is pleasantly situated on a creek called Boldre-water, which discharges into the sound that divides the Isle of Wight from the more northern parts of the county. This port formerly possessed an harbour for ships of some considerable burthen, but the improvident measure of cutting off the ascent of the flood tides above the town, has already produced much mischief, by the silting up of the harbour, and the crooked course the channel now takes in wandering through the sands to deep water. These evils, if not timely relieved by re-admitting the full and free access of the tides towards Tilney-street and Boldre-bridge, that their reflux aided by the land waters, may again scour out and open a deeper and straighter channel to the sound: the harbour of Lymington must gradually grow up, and all the shipping interests of the port be lost, and go entirely to decay.

This ancient borough is a corporation by prescription, consisting of a titular mayor, alderman, and burgesses, without limitation. The mayor is annually chosen by the burgesses residing within and without the borough, and sworn in at the court leet of the lord of the manor. It sends two members to parliament, its first return being in the 27th of Elizabeth: the number of voters are about eighty, and the returning officer the mayor.

This town, as well as Christchurch and Southampton, is much frequented in the summer season for sea-bathing.

The manufactures for which Lymington is most noted, are those of culinary and medicinal salts from sea water. This business is pursued much less now than formerly, but still carried on to some considerable extent, particularly by one gentleman, Mr. St. Barbe, who very obligingly favoured the Surveyor with the following, as well as much other useful information.

The salt works at Lymington, formerly very extensive, are perhaps equal to any *marine* manufactory of that kind in the kingdom. The sea water is first admitted into feeding ponds, from whence it flows into levels, in which there are partitions, forming pans, as they are called, of from twenty to thirty square perches each: these receive the sea water from the feeding ponds to the depth of about three inches, and from which it passes from the higher to the lower pans, exposed to the action of the sun and wind, until the brine becomes of a sufficient strength to be pumped up by small wind engines into a cistern, whence it is conveyed by troughs into the respective iron pans for boiling. The ordinary size of these boiling pans is about 8 feet 6 inches square, and about 11 inches deep, but of which depth about 8 inches only is filled with brine, which is kept gently simmering until the last hour, when the heat is much augmented, for the purpose of drying the salt, which has been all along forming on the surface of the brine, and falling through it to the bottom of the pan, thus gradually diminishing the brine in the pan at the rate of about half an inch per hour.

The extent of ground required for evaporation, exclusive of the feeding ponds and cistern, is about three roods, or 120 perches to each pan. The standard by which the strength of the brine is ascertained as fit for boiling, is with glass beads or bubbles, or hemispherical formed pieces of wax, loaded with lead, and so graduated, as when just floating in the brine, the workmen know that it is of such a strength, as the burning of eighteen bushels or half a chaldron of coals will produce about two tons of salt, each pan yielding about eight bushels of dry well drained salt every eight hours, and consequently a bushel per hour for the six days and nights they are thus kept constantly employed. When the salt is first taken out of the pans, the quantity would measure more than eight bushels, but as it is left to drain in the trough for eight hours after the pans are emptied, about ten gallons of bitters run from each trough in that time, and which, with the dissolved salt carried down with the bitters, but afterwards arrested upon a stick placed under an aperture in the bottom of the salt trough, and by the workmen called salt cats, is reduced to the eight bushels of well drained salt before mentioned. The salt thus re-crystallized, and forming the salt cats, is esteemed by far the strongest and best salt made at the factory, but which, by

Mr. St. Barbe, is always broken up and mixed among the mass.

The quantity of calx adhering to the bottom of the salt-pans, is not only a corroborating proof that all calcareous earth is originally derived from the sea, but that the ocean, generally speaking, is the mother of the earth, producing this change in the manner shewn by the learned and ingenious translator of the late enlarged edition of Linnæus, Dr. Turton, of Swansea. This calcareous crust requires to be taken off every fourteen days, when it is broken small and thrown into adjacent brine-pits, to dilute and give out the salt with which it is so highly charged, and which brine is afterwards pumped into the cisterns for boiling. The salt-pans are all made of plates of wrought iron, well secured and rivetted together, and will cost new (making included) from 36*l.* to 40*l.* each, weighing about 18 cwt.

The salt shipped for exportation, sells in war time from 38*s.* to 42*s.* per ton; when used for home consumption, it is subject to a duty of 30*l.* per ton; hence a bushel of salt weighing 56 lb. purchased at the works for 16*s.* 3*d.* pays 15*s.* to Government in duty, and 1*s.* 3*d.* to the manufacturer.

The bittern discharging from the manufacture of so much marine salt, is conducted into a large tank or reservoir under a part of the building. In the cold frosty season of winter, this bitter water is drawn by a syphon out of the reservoir, and carried by troughs into the boiling pans, where after being boiled about an hour, and its impurities skimmed off, it is left to remain until the following morning, when in a milk-warm state it is conveyed into wooden cisterns or deep coolers, and the common Epsom salt is then found to crystallize, and adhere to the bottom and sides of the vessel. This is called single Epsom salt, and is worth about 9*s*. per cwt. for exportation, but subject to the common salt duty of 30*s*. per cwt. if used at home. In order to procure a more general sale of this article, it is sometimes refined by the manufacturer, who dissolves the single Epsom salt in pure fresh water, boiling the solution afterwards in a copper pan, when after being again well skimmed, is returned into similar wooden vessels to crystalize, and is then worth about 16*s*. per cwt. for exportation, but also subject to the common salt duty if consumed at home. The diminution of quantity on refining, is about one-third, and the difference of price accruing on the remainder, will about suffice to pay the additional expense incurred by the latter operation.

Considerable quantities of Glauber salts, called candy, are found in large crystallized masses at the bottom of the bittern tanks; these however are always boiled down, and subjected to the regular course of formation afterwards.

There are 68 pans in the Pennington and Lymington saltings; the average annual period of working them is 16 weeks, during which time each pan yields from 16 to 17 draughts or boilings weekly, amounting from three tons to three and a quarter of merchantable salt per pan, for every six days they continue at work. From the bitter liquor which drains from the salt, there is also made from three and an half to four per cent. of Epsom salts, calculated on the quantity of common salt manufactured at these saltings: on a supposition that the whole was consumed at home, the revenue produced annually to Government by these saltings would be considerable: great quantities are, however, exported to America and other countries, on account of which but a very trifling duty is paid.

Some attempts have been made, and so far thought to answer tolerably well, of making bay salt on these levels; but the length of time required, from the natural humidity of the climate, must for ever operate against this mode of making salt upon a large scale. There is also an iron foundery at Lymington, and some little business is done in the sack and sacking trade.

There are two fairs held at Lymington; one on the 12th of May; the other on the 2d of October, and its weekly market day is Saturday.

Lyndhurst.—This may be considered as the capital of the New Forest. Here all the manor courts are held, and all the business transacted which relates to the management and government of the forest, at least such as may be considered detached from the Surveyor General's Office in London. Here is the nominal residence of the Lord Warden, at present His Royal Highness the Duke of York. The New Forest comprises a tract of country, according to the late Surveys, of about 92,365 acres, within which perambulations are 25,422 acres, which since the first afforestation, has been made private property by grants from the Crown. This tract of country is stated formerly to have contained many populous towns and villages, and 36 mother churches. The whole however were destroyed and turned into a forest by William the Conqueror. This large tract lying many years open and exposed to invasion, King Henry the Eighth built some castles in and upon its frontiers, for its protection. It is situated in that part of the county which is bounded on the east by the Southampton river, and on the south by the Sound, which divides it from the Isle of Wight and the British Channel. It possesses advantages of water carriage to the Royal Dock Yard at Portsmouth, and other private ship-yards in the inlets upon the coast, superior to every other forest in the kingdom; and yet it is not more strange than true, that this tract of 66,943 acres, of an average quality for its extent with any other part of this or the adjacent countries, having several excellent houses and suitable conveniences about them, including the full value of every tree delivered at Portsmouth for the use of the Royal Navy, does not net a sum exceeding *4d.* per acre, or *1200l.* for the whole forest per annum, to the nation.

Southampton—Is situated towards the northern head of an inlet from the Sound before-mentioned, and between the confluence of the Teste and Itchen rivers. The castle stands nearly in the middle of the south part of the town, and has been lately rebuilt by the Marquis of Lansdowne, whose kitchen-garden at Rumsey was unluckily omitted to be taken notice of in its proper place.

This town was a colony of the Romans, called Clausantum. It was on the beach by the side of this inlet that the Danish King Canute gave that striking reproof to his flattering courtiers, when the disobedient tide washed his feet. According to Doomsday Book, this town, at the time of the Conquest, contained eighty-four houses. Here King Henry the Fifth mustered his army when he made his first expedition to France. The Emperor Charles the Fifth embarked here on board the English fleet for Spain; and King Philip of Spain landed here when he came to marry Queen Mary.

Southampton was incorporated by Henry the Second and King John; it was next made a county of itself by Henry the Sixth, who thus rendered it independent of the Lord Lieutenant of the county of Hants. By its last charter, granted by Charles the First, the corporation consists of a mayor, recorder, sheriff, and two bailiffs: all those who have served any of the foregoing offices, constitute the common council, which are consequently indefinite and unlimited; but the corporation have a power of choosing burgesses, who, although not members of the common council, are yet of the corporation, and therefore have votes.

There are eleven justices of the peace, viz. the mayor for the time being, the Bishop of Winchester, the recorder, the last mayor, five aldermen, and two burgesses. All who have passed the chair are aldermen. The corporation have several officers, as a town-clerk, four serjeants at mace, a town-crier, &c. The mayor and bailiffs have a court for the recovery of small debts. All causes are tried in the Guildhall, where the quarter sessions are also held, for all offences not capital; and even of these, cognizance may be had, on taking out a special commission. The mayor is admiral of the liberties, from South Sea Castle, near Portsmouth, to Hurst Castle, which is seated on a neck of land that runs so far into the sea, as to form the shortest passage to the Isle of Wight.

This town (as before observed) is a county of itself, and remarkable for the respectability of its corporation, but which (although the right of election is in the inhabitant housekeepers paying scot and lot, and amounting to near 600*l*.) principally influences the election. The corporation have the power of making non-resident housekeepers, burgesses; a privilege they have never yet abused. The mayor and bailiffs of the town and county of Southampton, are the returning officers for said town and county.

Though the town of Southampton is still a considerable place, yet the trade of it has greatly declined since the beginning of the last century: it is much frequented in the sea-bathing season, where the company is much more select than usual at such places; and although the accommodation is dear, it is generally of the best sort, and truly elegant.

The inlet at the upper end of which the town of Southampton is situated, is navigable for vessels of considerable burthen, and the two principal rivers that flow into it with their canals, admit small craft to Winchester and to Andover. Including as its dependencies the ports and havens of Titchfield, Hamble, Bursledon, Beauley, Lymington, and Christchurch, Southampton must formerly have been a town of considerable commerce. The registered shipping at present belonging to this port, is about 250 sail, measuring 13,500 tons, and navigated by 975 men and boys. Besides the coasting trade of this port, there is exported, horses, mules, hoops, earthen-ware, woollens, &c.; and imported, wine, spirits, iron, pitch, tar, hemp, spars, balks, and all kinds of naval stores.

The salmon and other fisheries appertaining to this port and its dependencies, are very considerable; in proof of which it may be only necessary to mention one small place, the little town of Hamble, which has twenty sail of well, and other boats constantly employed in fishing, and in the season bringing lobsters from the Scilly islands and the Land's End, affording employment for a number of carts, constantly loaded at this place for London, Oxford, Bath, &c. from the month of April until the end of October. The common price at the boats for home use, is 15*d.* per pound for craw-fish and lobsters; crabs about 7*d.* per pound; other round and flat fish, from 3*d.* to 8*d.* per pound; thus varying according to their size, abundance, and quality. In this account, neither oysters or herrings are included; the latter of which, in the beginning of winter, are sometimes taken in pretty large quantities; and so far as they may extend, prove a grateful relief and change of food to the more interior inhabitants of the county. There are two fairs held in the year at Southampton, on the 6th and 7th of May, and Trinity Monday and Tuesday. Its weekly markets are kept on the Tuesday, Thursday, and Saturday; distance from London about 77 miles.

In the parish of South Stoneham there is a wood-mill at present employed, in addition to the machinery at Portsmouth, in manufacturing blocks for the Royal Navy; a number of grist and merchant flour-mills are placed along the Avon, the Teste, the Itchen, the Beauley, the Botley, and the Titchfield waters. At Northam and Bursledon there are private building yards, where frigates and seventy-four gun ships are contracted for and finished; on the Beauley river there is also another private ship-yard, that admits vessels of the second and third rate force being conveniently constructed.

A considerable paper manufactory is carried on at Stoneham mills, the fuel for which is coal, chiefly obtained from Southampton, and at the average expense, on delivery, of 44*s*. per chaldron.

Titchfield.—Near this town there was formerly an abbey of Cistertian monks, founded by Peter De Rupitus, Bishop of Winchester. Stowe says, that Henry the Sixth solemnized his marriage here with Margaret of Anjou, and Charles the First concealed himself when he escaped from Hampton Court, until Colonel Hammond conducted him to the Isle of Wight. This town has all the appearance of prosperity with but little stir of business, either of manufactures or commerce. It has four fairs within the year, viz. 7th March, 14th May, 25th September, and 5th December.

Bishop's Waltham—Is governed by a bailiff (a patent place), the courtholder or bishop's steward, who holds the court leet and court baron, and appoints the constables and tithing-man. The manufactures carried on in this place are chiefly tanning and malting; these are pushed to some considerable extent. This town has three fairs within the year: the first on the 8th May, the second the 30th July, and the last the 16th of October. Its market is kept on the Friday. It is distant 72 miles from London.

The area of this District, its population, parochial levies and disbursements, and the friendly societies of the respective divisions, towns, parishes, tithings, or precincts, comprised within its boundaries, and applicable to the remaining enquiries demanded in this Chapter, are stated in the following Table.

DISTRICT

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7	—		1	16	0	6	139	7	8	—	—	—
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, they will be enabled in many instances to

workhouse.

the respective divisions, towns, parishes, tithings, or precincts, comprised within its boundaries, and applicable to the remaining enquiries demanded in this Chapter, are stated in the following Table.

DISTRICT

This District, divided into 27 rectangular figures, and their contents summed up, is found to contain (exclusive of 6000 acres of improveable, though at present inaccessible, mud banks or salt marsh, lying between Hurst Castle and Beauley river, and on the navigable channels of the Beauley, Southampton, and Lymington rivers) an area of 333,489 acres, in which is included, with other wastes and commons, crown lands in the forests of Bere and New Forest to the amount of about 64,840 acres, besides the church lands in the forests of Bere and Waltham Chase, the latter containing about 2000 acres; the former 16,000 acres within the lines of its perambulation, about 10,600 acres of which lie open, and subject to, the range and feed of the King's deer and the commoners' cattle: the whole is equal to a space of 521$\frac{1}{10}$ square miles, and which, from the sum of its population, including the inhabitants of the county of the town of Southampton, and town of Gosport, appears to sustain 132$\frac{1}{10}$ souls to each square mile of 640 acres. There being out of the 57 towns, tithings, and parishes, which compose this District, no less than 20 inaccurately returned under the head of Occupations, necessarily precludes those columns from being cast up, and their amount carried forward to the general abstract.

The sum annually levied in this District, for parochial uses, amounts on the population to 13*s*. 5*d*. per head; of this there is 11*s*. 5*d*. expended on account of the poor, whilst the remaining 2*s*. per head raised on the aggregate number of inhabitants, is applied, as before noticed, for other parochial uses.

DISTRICT V.

Fareham.—By some improvements which are readily to be effected, this town might be rendered a pleasant little sea port. It is situated on the western extremity of the Portsmouth harbour, and is governed by a bailiff, two constables, and two ale-tasters. A brick and tile manufactory of superior excellence has been long established in in this place. A sack and cordage manufactory are also carried on with much spirit, the latter for the supply of many large vessels built here, and where there is also a considerabe coal trade carried on for the support of the adjacent country. The potteries of Fareham are also carried on to a considerable extent. Among the great variety of useful articles which are here manufactured, Mr. Stares has draining bricks and cylinders of various dimensions, the larger ones, allowing for the length of insertion in each other, are a foot long in the clear, the smaller ones sixteen inches. The joints of these cylinders, secured with a cement prepared from the grey chalk obtained at Petersfield, become permanently useful for conducting water to any distance whatever: when used for hollow-drains, they are perforated to admit the soakage of the surrounding and incumbent water into the pipes by which it is carried off. The tunnel cylinders for gateways, or conducting a large column of water, are 1*s.* per foot; the smaller ones for conducting water, 6*d.* per foot; and those for hollow-draining, 6*d.* for each length of 16 inches.

Chimney-pots of a peculiar construction are also made by Mr. Stares: those armed with six inverted pipes and apertures, with a cap on the top, are warranted tanted to prevent any ill effects from smoaky chimneys, price one guinea each.

There is one fair only held at this town, which is on the 29th of June: its weekly market is kept every Wednesday.

Portchester.—It is pretended that Vespasian landed here, and Ptolemy calls it the great port: here is an ancient castle, which appears to have been built for the purpose of commanding the harbour below, and is supposed to have been erected by Gurgunstus, son of Beline, who lived 375 years before the christian æra. It is occasionally used as barracks, and for the reception of prisoners of war.

Havant.—At this place there are two fairs held in the course of the year, one upon the 22d of June, the other on the 17th of October: its weekly market is kept on the Saturday. It is a considerable thoroughfare, and though not famous for any particular manufacture, carries on a considerable corn and coal trade, and does a good deal of business in the transport of hatched bark and timber: it has all the appearance of being in a very flourishing condition.

Emsworth.—This little port is also appendant to that of Portsmouth; it is also a considerable thoroughfare, and has much improved of late years: its trade is similar to that of Havant. It has two fairs, one on the 30th of March, the other on the 18th of July: its weekly market is held on the Wednesday.

Haling Island—Is situated in the estuary, lying east of Portsea Island, which opening also includes Thorney Island, in the county of Sussex. Its soil and husbandry having been already described, and there being nothing materially requiring notice in this place, we shall cross over to

Portsea Island—Which is formed by the above inlet on the east, and another on the west, called Portsmouth harbour, and nearly opposite to the east end of the Isle of Wight, and on the south-eastern frontage of the county. In this island, and at the distance of seventy-two miles south from London, is situated the town of

Portsmouth—Which is supposed to have received its name from Port, a famous Saxon chieftain, who in A. D. 501, landed here with his two sons. This place made a considerable figure in the time of the Saxons, and from the advantages of its situation, was highly favoured by all our monarchs of the Norman line, and by whom it was incorporated, and became a parliamentary borough. In the reign of Edward III. it was in a very flourishing state, but A. D. 1338, and in the very same reign, it was burnt by the French, upon which that Monarch forgave the inhabitants a debt, and remitted their fee-farm dues for ten years, within which space they so far recovered themselves as to equip a squadron, which sailed into the mouth of the river Seine, sunk two ships, and brought away a great booty.

The singular excellence of this port, and its convenience for fitting out fleets in time of war, induced Edward the Fourth to think of fortifying it, which fortifications were farther carried on by Richard the Third.

King Henry the Seventh was the first who used it as a garrison town, and which was increased, and the place made still stronger, by Henry the Eighth, who had a great dock here, and in which was built the "*Henri grace de Dieu*," at that time the largest ship in the British navy. The same Monarch, always remarkably attentive to the security of his maritime dominions, built what is now called South Sea Castle, a protection that was much augmented in the time of Queen Elizabeth. After the Restoration, King Charles directed further works to be made, established new docks and yards, raised several forts in the modern way, and which works were much augmented during his brother's reign. King William directed fresh alterations and additions, and succeeding Princes following these examples, have so extended these fortifications, as to render them the most regular fortress in Britain, and as it cannot be effectually attacked by sea, may justly be deemed impregnable.

Many of the largest ships are always laid up here, and in time of war it is the principal rendezvous of the grand Channel Fleet. The docks, arsenals, store-houses, barracks, are all of considerable magnitude, kept well supplied, and in the most perfect order. The brave but unfortunate Robert, eldest son of William the Conquer, landed here with his forces when he made an attempt to recover his birth-right, which his younger brother Henry had seized. Charles the Second was met here by Catherine, the infanta of Portugal, and was here married to her.

The right of election in this town being exclusively in the corporation, consisting of a mayor, recorder, twelve aldermen, and an indefinite number of burgesses, like that of Plymouth, the same influence prevailed for a great number of years, and the Admiralty was always admitted to have the nomination of its members. The corporation, however, being chiefly composed of men of independent fortunes, in 1774 invited Joshua Iremonger, of Wherwell, in this county, a gentleman of great opulence and independence, to oppose the Government interest. This opposition to Government caused them to move the Court of King's Bench for informations in the nature of *quo warranto*, against the mayor, several of the aldermen, and sixty-three of the burgesses. These informations having been severally obtained, and trials had thereon, judgments of ouster was issued against the whole number. Similar informations were then moved on behalf of the patriotic against the ministerial party, and twenty-nine of the latter were likewise ousted.

The corporation having once more obtained a legal form, a court of aldermen was held, the vacancies were filled up, and a number of new burgesses were elected, of such a character and independence, as placed them beyond the reach of improper influence. The constitutional objections, however, against them are, that the majority of them are non-residents, and that, by their constitution, they elect each other, without the suffrages of the inhabitants, who thereby are not only excluded from their natural right to their choice of magistrates, but also from the more important one of delegating their representatives to the legislature, in whom is the disposal of their liberty, property, and life.

This town was incorporated by Charles the First, but it first sent members as early as the 23d of Edward the First. It is governed by a mayor, aldermen, recorder, bailiffs, and common council: the number of voters 110, and the returning officer the mayor.

The great *manufacture* here is ship-building, and the preparation of stores necessarily connected therewith.

Commerce.—Exclusive of the ships of war, transports, and hired armed ships, continually repairing to, and stationed at this place, there are of registered merchant vessels, belonging to this port and its dependencies, 230 sail, measuring 8765 tons, and navigated by 660 men and boys.

Gosport—Is situated on the west side of the harbour of Portsmouth, over which is a constant ferry: it is well fortified. Here is a noble hospital for the sick and wounded of the Royal Navy. Its vicinity to Portsmouth places it in the situation of a suburb to that important depôt; as, whatever may effect the interest of the one, cannot help being very sensibly felt by the other. There is a mart or fair at Portsmouth, that commences the 10th of July, and continues for the 14 following days. To this Portsdown fair immediately succeeds, and which commences upon the 26th following. There are two fairs held at Gosport in the course of the year, the one on the 4th of May, the other the 10th of October. The weekly markets are held at Portsmouth on the Tuesdays, Thursdays, and Saturdays, and at Gosport on the Thursday only.

The area of this District, its population, parochial levies and disbursements, and the friendly societies of the respective divisions, towns, parishes, tithings, or precincts comprised within its boundaries, and applicable to the remaining enquiries demanded in this Chapter, are stated in the following Table:

DISTRICT

Besides the fairs already noticed, as being held in and near some of the principal towns in the county, there are also other fairs kept in the course of the year, at the following places:

Appleshaw, near Andover, May 23, and November 4 and 5.

Barton Stacey, July 31.

Beauley, April 15, September 4.

Botley, February 3, May 12, July 23, August 18, November 13.

East Meon, September 19.

Eling, near Southampton, July 5.

Giles'-hill, near Winchester, September 12.

Hambledon, February 13, May 5, October 2.

Liphook, March 4, June 14.

Lyss, May 6.

Mattingley, parish of Heckfield, December 4.

Rowland's Castle, near Havant, May 12, November 12.

Selbourne, May 29.

Southweek, April 5.

Sutton Scotney, parish of Wonston, Trinity Thursday, November 6.

Tangley, parish of Hursbourne Tarrant, April 15.

Wherwell, September 24.

Wickham, May 20.

ISLE OF WIGHT.

DISTRICTS VI. VII. AND VIII.

Yarmouth.—This town sends two members to parliament, who are chosen by the corporation, which consists mostly of out-burgesses. It first returned members 23d Edward the First, after which time an interregnum took place, until the 27th of Elizabeth.

The right of election is in the capital and free burgesses, which are unlimited by the constitution of the borough; number of voters 50; returning officer, the mayor. This town is much frequented in the summer by those who make a tour of the island. It also receives some benefit from vessels that may be occasionally detained in Cowes Roads. The bulk of its inhabitants seem chiefly to depend upon the demand there may be in the summer season for pleasurable boat excursions, ferrying, piloting, and fishing. It has a fair, which is annually kept on the 12th of July.

Newton—Has a convenient haven, but altogether has much the appearance of a place fallen to decay, having but few cottages, and consequently very few inhabitants. This is a borough village, the right of election in which, is attached to 39 borough lands, or burgage tenures. This small borough never sent to parliament until the 27th of Eliazabeth. It has no corporation, but a titular mayor; and 12 burgesses are chosen by the lord of the manor; number of voters 93, returning officer, the mayor. It has an annual fair, which is held on the 22d of July.

East and West Cowes—Are situate at the mouth of the Medina river. These are places much frequented in the summer season, on account of the great convenience they afford to sea-bathing. The harbour and roadsteads of this port are much frequented by American vessels, which touch here for information respecting the state of the European markets, and to receive farther orders from their friends in London. This occasions, with the continual rendezvous of other shipping, a considerable stir and activity at this port, besides what is otherwise to be expected from the business incidental to its own registered ships, which consist of about 136 sail, measuring 3713 tons, and navigated by 382 men and boys. A fair is annually kept at West Cowes on Whit-Thursday.

Ride.—This small port, lying directly opposite to Portsmouth, is chiefly supported by its fishery and ferry, and the number of vessels that constantly moor within its reach, occasions great demand for fresh provisions and sea stores of every denomination, and which are always to be obtained, though generally at very high prices. It appears to have much increased within a few years.

Brading—Has two fairs, one on the 12th of May, the other on the 2d of October. It is a neat respectable looking town, much frequented in the summer season, and appears to be inhabited by many families in easy circumstances. The same indeed may be said of

Newport—Which has all the appearance of being in a very flourishing condition. This is an ancient borough by prescription, and, as before spoken of Yarmouth, sent members to parliament 23d Edward the First, but ceased sending until the 27th of Elizabeth.

From a bye charter of the thirteenth of Charles the Second, Newport is governed by a mayor, eleven aldermen, and twelve burgesses: the number of voters are twenty-four, and the returning officer the mayor.

There is one fair in this town, which commences on the 18th of May, and continues until the evening of the 20th: the only corn market in this island is held throughout the year on Wednesdays and Saturdays.

Carisbrook Castle is the seat of the governor of the island. It was built by the Saxons, and had once a monastery. Charles the First was detained here a prisoner three months. The well that supplies the castle with water is 72 yards deep, and the water is raised out of it by a large tread wheel. There is here an instance of an ass performing this service for a period of forty years.

The present military depôt in this island occasions much activity among all its inhabitants, who find their exertions well repaid by the extraordinary demands there is thus made for supplies of every description, and for which a ready and prompt payment is made. The only manufactures from the raw material carried on in this island, are the cordage and sackings made at the house of industry near Newport.

A number of persons are continually employed upon the flat and rocky coasts of the island in catching shrimps and prawns, and in taking crabs and lobsters on its bolder shores. The prawn season is usually over by harvest, when many of the fishermen who have been so employed, hire themselves for the harvest month to the neighbouring farmers.

The area of this island (which comprehends Districts the 6th 7th and 8th), its population, parochial levies and disbursements, and the friendly societies of the respective divisions, towns, parishes, tithings, or precincts, comprised within its boundaries, and applicable to the remaining enquiries demanded in this Chapter, are stated in the following Table.

F WIGH'

[*At page* 442.

	Money raised by Poor and other Rates.		Total of Parochial Expenses.			Number of Friendly Societies, and	Members therein.	Children in Schools of Industry.
-	£.780	19	756	19	9	—	—	—
-	91	2	91	2	6	—	—	—
-	47	11	47	0	11	—	—	—
-	765	10	767	13	5½	—	—	—
-	489	8	489	10	0	—	—	—
-	680	4	662	10	6	—	—	—
-	95	12	95	12	0	—	—	—
-	116	0	121	6	3	—	—	—
-	21	4	21	4	1½	—	—	—
-	368	18	467	8	9	—	—	—
-	99	14	99	14	5	—	—	—
-	59	6	64	5	4	—	—	—
-	121	16	121	16	2	—	—	—
-	126	17	166	2	2	—	—	—
-	49	6	44	16	4	—	—	—
-	242	2	231	12	4	—	—	—
-	817	0	909	9	10	—	—	—
-	151	18	167	17	3	—	—	—
-	201	10	200	17	10	—	—	—
-	167	16	163	17	6	—	—	—
-	27	18	25	1	11	—	—	—
-	28	6	33	1	5	—	—	—
-	444	13	447	8	8	—	—	—
-	94	3	94	3	8	—	—	—
-	517	15	526	15	5	—	—	—
-	208	16	218	0	4	—	—	—
-	54	15	53	2	3½	—	—	—
-	51	4	49	19	6	—	—	—
-	915	7	938	17	8½	2	207	11
50	£.7837	0	8077	8	4	2	207	11

gavbelow the high water mark in tlres. The accessible part of t, which, from the amount of i

The sum7*s.* 1*d.* per head; of which sumy; and the remaining 2s annchial demands.

Bill of Fare for the House of Industry in the Isle of Wight,
1804, 1805, 1806.

	BREAKFAST.	DINNER.	SUPPER.
Saturday	Broth and bread thickened with flour, and without limitation to man, woman, and child.	No beer. Rice sweetened with treacle. 25 lb. of rice will satisfy, with 6 lb. of treacle, 280 persons.	Beer, bread and cheese, without stint. Quantity of cheese for the aforesaid number, 42 lb. per meal.
Sunday	Ditto.	No beer. Boiled mutton with vegetables. 210 lb., with about 4 oz. of bread to each, is sufficient for this meal.	Beer, bread and butter or cheese; but when potatoes are in season, the same quantity of potatoes and butter is used as for Wednesdays.
Monday	Ditto.	No beer. Boiled pease with bread. Two bush. one peck of pease, with about 4 oz. of bread, is sufficient for this meal.	Beer. Bread and cheese 42 lb., or butter 18 lb.; the same as for Saturday's supper.
Tuesday	Ditto.	Beer. Boiled pickled pork with vegetables. When Irish pork is used, 140 lb. is required; but of home cured pork 100 lb. is found fully sufficient.	No beer. Boiled rice sweetened with treacle; the same as Saturday's dinner.
Wednesday	Ditto.	No beer. Boiled pease with bread, the same as above; but when potatoes are in season, 10 bushels, with 16 lb. of butter, is sufficient for this meal.	Beer, bread and cheese; the same as on Monday.
Thursday	Ditto.	Beer. Boiled pork with vegetables; the same as on Tuesday.	No beer. Boiled rice sweetened with treacle, the same as Tuesday; but when potatoes are in season, baked potatoes are served out as on Sunday.
Friday	Ditto.	No beer. Boiled pease with bread; the same as on Monday.	Beer, bread and cheese, or butter.

It is here to be observed, that all the potatoes consumed in this establishment are first washed thoroughly clean, and then left to dry, when they are placed in large brown pans, holding about half a bushel each. The expense of baking 10 bushels is calculated not to exceed 12 faggots, of *3d.* value each, and consequently equal to about *3s.* No steaming utensils are used in this establishment.

The beer consumed in this house by the above number of persons, allowing each time a pint for grown persons, and about half that quantity for children, is about a barrel per day, brewed every three weeks, and after the following manner.

Four sacks, or 16 bushels of malt, and 56 lb. of dry muscovado sugar, the latter boiled up in a large iron pot, and after being sufficiently diluted in boiling water, is mixed with the wort, and boiled with the hops (18 lb.) for about two hours; this makes about 21 barrels, and is consumed at the rate of seven barrels per week. The brewing is always renewed during the last week of the old stock. The quantity of malt formerly used for the same quantity of beer, was seven sacks, or 28 bushels, which at 11*s.* per bushel, is .... £.15 8 0

The present management only requires 16 bushels of malt, which at 11*s.* per bushel,	£.8 16 0	
56 lb. of sugar, at 6½*d.* per pound, ...	1 10 4	
		10 6 4
Leaving a saving of		£.5 1 8

upon every brewing, and consequently for seventeen brewings only in the course of the year, there is a saving of no less than 86*l.* 8*s.* 4*d.* The Surveyor had an opportunity of tasting this beer, and which, in his judgment, possessed a sound, wholesome, and nourishing quality.

ABSTRACT

PRECEDIN

Num ti		AMOUNT OF					Amount of Money raised per Head per Ann. on the resident Population, and also of its Expenditure.				
	At what Rate in the Pound Rent.	Money expended out of any House of Industry or Workhouse.				Total raised per Head per Ann. by Rates.	Proportion expended on account of the Poor.	Expended for other Parochial Demands.	Number of Friendly Societies.	And of Members therein.	Number of Children in Schools of Industry.
1st,	—	£.11,874	10	11½	1½	20*s.* 2*d.*	16*s.* 9*d.*	3*s.* 5*d.*	2	159	35
2d,	—	42,006	17	9½	6½	11 5	16 4	2 1	5	325	99
3d,	—	4919	4	10¼	9¾	20 9	17 4	3 5	—	—	5
4th,	—	18,731	0	6¼	2¼	13 5	11 5	2 0	30	2164	314
5th,	—	3702	6	7	2	7 3	5 11	1 4	15	1384	—
Isle	—	1478	6	7	4	7 1	5 1	2 0	2	207	11
City ch	—	1745	14	1	4½	—	—	—	3	135	—
Ports sc	—	513	3	6	9½	—	—	—	4	186	40
Soutl	—	1037	11	0	6½	—	—	—	1	173	110
	5½*d.**	£.86,008	15	11¼	£ 10½	13*s.* 6*d.*	11*s.* 11*d.*	1*s.* 7*d.*	62	4733	614

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The amount of the lation of the county. The amount of the whole expenditure on accou population. The difference between these sums, viz. 1*s.* 7*d.* per head, iposes.

The poor of five plst.

The poor of 52 pari Winchester, and Town of Southampton, as before noticed, are maintaine

Twenty-seven Frie Acts of the 33d of Geo. III. c. 54, and the 35th of of Geo. III. c. 3.

The want of an exnd Disbursements, arises wholly from the number of errors observed by ess than 30,000*l.* The columns which are chiefly blank, under the head uently the column of Totals; instead of which, the numbers in those colums, and which it became impossible for the Surveyor to fill up, or proj

CHAP. XVII.

OBSTACLES TO IMPROVEMENTS.

Relative to capital.—Circumstances of this nature among some of the woodland and forest farmers, may be regarded as obstacles to improvement, but generally throughout the county there does not appear a want of talent, industry, or capital, among the farming community.

The second and third Sections of this Chapter, viz. "Obstacles relative to Prices, and "Obstacles relative to Expenses," are unfortunately not within the comprehension of the Author of this Report.

The fourth section, which asks, if the want of power to enclose operates as an obstacle to improvement, has already been answered in the statement given upon enclosures recently made, and of others now carrying forward in the different parts of this county.

The opening of all the woodland parts of the county to a freer circulation of air, and a very general and close hollow-draining through all the moist loams and clay lands, are among the most important means such parts of the country afford for improvement, and against doing which there does not appear to be any greater obstacle than in many places the want of an encouraging term of years to the tenantry of the country, to draw forth their skill, ability, and inclination, for so doing. Where such improvements are neglected on the demesnes, or directly under the eye of the resident country gentlemen, they operate as a reproach to such gentlemen, as well as those who have the management of their estates.

The laying into severalty the remaining open common-fields and meadows, enclosing the cow and other coarse commons, and discharging by a land commutation the whole, with all other landed property in the united kingdoms, from the payment of tithes, would contribute more effectually to the better cultivation of the national territory, than any other measure (the improvement of the wastes and forests excepted), at present within the view of the Author of this Report.

One very formidable obstacle to the cultivation of the country, may in future be created, and that is, by temporising by an ill-judged zeal with the peasant mind; this ought most scrupulously to be guarded against, and by a rigid adherence to the present poor laws, aided by the grace of conferring honorary badges and premiums of value, to all the working orders who may shew a disposition to regenerate so far as to be governed by those principles which were formerly the boast of the English husbandman (viz.), that he disdained to receive parish assistance but under the most afflicting trials of debility and distress (vide Essex Report, page 165). This, with a judicious exercise of the power now vested in the magistrates, as to the point of ordering parish relief, would, with affording every possible encouragement to the establishing of box clubs or friendly societies, operate more effectually in restraining the undue increase of the poor's-rates, than any other measure, however strong or coersive, or what on the other hand, a mistaken benevolence may be inclined to indulge and finally adopt.

The most effectual mode of disseminating agricultural information among the tenantry of this or any other country upon earth, is by examples of superior management in the practice of the more able and enlightened proprietors of the country: truths of this nature brought home to the understanding of the farmer, will never fail of carrying conviction with them, and in due time becoming the universal practice of the country.

Upon breaking up most of the old sainfoin lays, the red and yellow wire worm are found extremely troublesome. Nothing will so completely resist their ravages as a thorough winter and summer-fallow of such lands followed with turnips, fed off, and again turniped the second year with the early tankard sort fed off, and the land then sown with wheat before the end of October. Top-folding this wheat in dry nights during winter, and keeping the surface well rolled and compressed the ensuing spring, will contribute much to overpower these insects and restrain their working.

The black maggot is often found to do much mischief to the young turnips; the foliage of these they attack most voraciously about the time the plant begins to apple, and are found much to injure and retard their growth.

In the chalk district, complaints were heard of injury to the young clover by the larks, in pecking the crown of the clover plant at the latter end of a severe winter.

In most low and humid situations the slug is found troublesome, but their ravages were no where represented so formidable as to excite much apprehension from the mischief actually done by or dreaded from them.

The damage formerly sustained by rats and mice, has been much lessened of late years, by the general practice of building corn ricks and stacks, as well as wheat barns, on staddles.

A circumstance of some curiosity has been mentioned by a gentleman of this county to the Surveyor. It seems there is a person in the adjacent county of Dorset, who possesses a power of destroying *mice* only in a very extraordinary way. He dresses (as he terms it) the mow-stack or rick, and forty-eight hours afterwards, every mouse within such bodies of corn so dressed is destroyed; a fact repeatedly and uniformly proved by the immediate removal of such stack or mow, when every mouse, young or old, capable of creeping together, is found collected in different parts of the stack or mow, and where they appear to have expired within a short time of each other. The nostrum used for this purpose is applied privately, but not the smallest trace of it is to be seen before or after the effect has been produced by it. The Surveyor was extremely desirous of obtaining some farther information on so singular a circumstance, but this he has not been so fortunate as to procure; nor would he have ventured to have said so much on so extraordinary an occasion, was not his information dependent on the veracity of a gentleman who has witnessed the fact, and from whose testimony there can be no appeal.

Sparrows and other vermin, with the means used for their destruction and to prevent their increase, are much the same in this county, as those generally known and resorted to in other parts of the British empire.

The weeds which occasion the greatest plague to the farmers in this county, are, upon the light soils, charlock, redweed, bindweed (commonly called lilies), and the common couch. Upon the heavier lands, they have to contend with morgan, mayweed, crab-grass, black-grass, the common and black couch, cow-rumble, crow-peck, or tansey-needle, wild garlic, crow-foot, coltsfoot, arsmart, &c. Successive fallows and repeated green crops well hoed and wed, are the only means hitherto devised for subduing this trumpery.

Mr. Budden recommends a thorough summer-fallow for two successive seasons, as the most effectual means of destroying coltsfoot; during the whole of this time one good fair ploughing in the winter preceding the first summer's fallow, is all the ploughing that will be required until the season arrives, the second summer, for sowing turnips. The cleansed and manured land may then be ploughed into the ordinary ridges for turnips, or carried forward for wheat.

The frequent cutting of the young shoots of coltsfoot, from three to four inches below the surface, but without disturbing the root lower down, has been observed by this gentleman to have a more powerful effect in the extirpation of this very troublesome weed, than any number of deep and clean ploughings it would be possible to afford the land in the same time.

CHAP. XVIII.

MEANS OF IMPROVEMENT:

AND MEASURES CALCULATED FOR THAT PURPOSE.

THE title of this Chapter opens an extensive, and somewhat new field for observation, but which in no respect will appear more wide than interesting, to all who may be devoted to agricultural pursuits, and at the same time desirous of advancing the cultivation of the country.

In attempting to submit to the consideration of the Honourable Board whatever the Surveyor may have been supplied with, from his experience, in matters so truly interesting to the welfare and improvement of the country at large, he begs leave to entreat the indulgence of the Board, if in this last and concluding Chapter of his labours, he ventures to depart in some small degree from the arrangement prescribed for the drawing up of these Reports.

The objects which at all times, but which at this momentous crisis seem to press with the greatest force on the attention of Government, and upon the thinking part of the community of these kingdoms, are manifold and various, but which may generally be conceived under one or other of the following heads.

First, The means of procuring from the national territory, and with the least possible expenditure of human labour, an ample and never-failing supply of animal and vegetable food.

Secondly, In providing raw materials for manufacture, to the full extent the soil and climate of these islands will admit of; and,

Thirdly, The raising of naval stores, as far as possible, within ourselves, for the purpose of preserving our present maritime superiority.

The furthering of all these objects is surely within the view of the Honourable Board of Agriculture; and as an humble instrument in promoting such measures, the Surveyor, under the correction of the Honourable Board, will venture to submit the following observations.

It is assumed as a point of unquestionable certainty, that the only real value of the national territory, is the means which it contains, and the proper application of those means, in producing the necessaries of life; for in that proportion only, will always be the population of a country. If we consume annually what is made, our population must remain stationary: it is the excess only beyond the consumption of such produce, that can lead to an increase of inhabitants, and that increase is the sole rational standard for measuring the strength, wealth, and prosperity of the nation.

Any practice therefore that does not ultimately tend to preserve the natural fertility of the national territory, is politically and morally wrong; and the advocates for such practices, be they who they may, are acting under a blind invincible prejudice, and to all intents and purposes becoming the most dangerous of all enemies to the permanent improvement, internal strength, and external importance of the country.

As these observations necessarily involve a question of the highest importance in the agricultural concerns of this county, and as a postscript to the former Agricultural Survey of Hampshire by the Secretary of the Board, seems strongly to inculcate the practice of paring and burning, and of resorting to it as a means of improvement *in all cases whatsoever*, and as this point will be best considered under the head of Manures (that being the sole renovating principle upon which all agricultural produce can be expected to be procured), we shall assign to that subject the first place in our present enquiry.

Manures—Are to be distinguished into three distinct characters. First, The alterative, which operate mechanically in correcting the defects of Nature, by forming a new arrangement in the structure and consistence of the surface mould. Secondly, Stimulant, which contain no inherent pabulum, or vegetable food, but act upon all such as may be contained within the soil. Thirdly, Direct or feeding manures, which contain a part of the immediate pabulum of plants.

Those objects of agricultural economy, which consist in rendering the strong lands more loose and friable, the light lands more firm and compact, by supplying each other with such portions of the primary earths, as, in the language of rural life, forms a good mixed soil, neither too hot or too cold, too wet or too dry, but preserving such a temperament as, agreeing with the climate of the country, shall approach as near as possible the best mixture for forming in it a standard of fertility, is perhaps one of the most important that can possibly engage the study and attention of the practical farmer.

The labours connected with these efforts, consist in marling, chalking, claying, ouzing, and as is practised in some parts of Essex and in the Isle of Wight, carting the sand and gravel upon the clay loams and brick-earths, and the contrary. These produce merely an alteration in the top-mould, by changing the consistence of its parts, rendering it easier or more desirable for the purpose of tillage, and adapting it better for the seat of such crops as it may be afterwards intended to sustain.

To manures of an instrumental nature, may be added, coal-ashes, burnt earth, brick-bats, house rubbish (this latter, however, is supposed, and it is believed very justly, to contain nitre in large quantities; and as that is a salt which is soluble in water, it may with propriety be considered as acting also as a feeding manure), pounded limestone, and limestone gravel.

The next point for consideration with the rational farmer, is that of applying, under certain circumstances, manures of a decomposing or stimulating nature, but which experience has shewn, do not contain any vegetable nourishment within themselves; but which, from other qualities they possess, are found to fertilize in particular situations, by resolving, it may be presumed, the inert animal and vegetable substances contained in such soils into a mucus, or such state, as to render them capable of combining with water, and of entering with that element into the roots of plants.

Manures of this nature are chiefly confined to two sorts, viz. lime and gypsum: the first effecting the dissolution of organic substances, by the avidity with which it lays hold of every thing containing water and fixed air, the principles of which it has been deprived in the process of calcination; the second operating to the same end, by the sulphuric or vitriolic acid, of which it is partly composed, being set loose and diffused by the pulverized state of the gypsum—a substance well known to promote putrefaction in a very high degree, at the same time to penetrate vegetable bodies so far as to dissolve the animal mucus produced in spinning, and the vegetable mucilage inherent in linen yarn, both of which lie twisted and locked up in the thread, or why is it so much used in the operation of bleaching? These manures also supply a portion of calcareous earth to the soils on which they may be spread, and so far are more applicable to lands possessing a clay or sandy basis, than those principally formed of chalk or limestone.

That this is the ordinary operation of these manures in the soil, the Surveyor has long observation and experience to demonstrate. Liming has been carried to such an extent in some parts of the north of Ireland, as nearly to reduce the old limed land to a *caput mortuum*, but from which state it is immediately aroused by the application of farm-yard or stable dung, or indeed any manure possessing a direct and feeding quality.

The application of gypsum is universally rejected (as being known to produce no effect) upon all the old exhausted corn and tobacco fields of Virginia and Maryland. In Pennsylvania the Surveyor has used it with astonishing effect; not more than two bushels to the acre on clover and Indian corn, but it was upon land where the unresolved remains of animal and vegetable matter had accumulated in the soil.

The third point for consideration on this subject, and that perhaps the most important that can employ the power of the human mind, is the means of preserving in a state of permanent fertility lands presented in a highly a highly fruitful condition by the hand of Providence —accidentally so formed, or artificially so made by the labour of man.

The first dawning of vegetation is the liverwort and lichens, which adhere to rocks and stones: these go to decay, and their residuum gives birth and nourishment to mosses of a stronger nature, which again dying, the same circle is renewed, and continued through a long chain of gradations, until its end in the climate of this country presents us with the stately oak, or under a milder influence with the cedar of Lebanon.

It has formerly been observed (Vide Devon Report), that so wisely has the Great Author of our Being contrived the universe, that in this transitory state, we perceive that the dissolution of one body is rendered essential to the propagation and unfolding growth and perfection of another.

That a fertilizing and enriching process of nature is continually going on, we have the evidence of our senses in every situation to demonstrate; and that in all places where the putrefactive process has not been restrained through the want of warmth, or by a redundancy of moisture: hence the increased and increasing fertility of all old pasture grounds *which lie upon a warm and open subsoil:* hence the incalculable value of the old maiden downs in this and every other chalk county in the kingdom; and hence also the madness, extravagance, and folly, of breaking up such of those downs as were unfit for the purpose of continuing in tillage; but of all things, of paring, burning, and destroying their native green sward, and which (as observed by the Surveyor in many places) must have attained to very high perfection, by lying in a state of undisturbed pasturage for a long succession of years.

ing of a sweet and inviting herbage, and which if properly rated twenty-five or thirty years ago, would in their unburnt state have been readily valued at 5*s*. or 6*s*. per acre; are at this time literally worth nothing. Not even a feeble plant of rape or coleseed, or the most hardy and humble of all our green crops, can be obtained from them without dung or sheep-folding, and consequently not without diverting from the home and more valuable lands their ordinary portion of dressing (the supply of which is much reduced from what it was formerly, by a necessary consequence upon all the beat burnt sheep-walks—a much reduced number in all those flocks).

These pared and burnt lands, from the decrease in the value of the circulating medium of the country, and the correspondent high price of agricultural produce, would, but for the ordeal they have undergone, be well worth at this time 8*s*. or 10*s*. per acre. The inference drawn by Mr. Young, that the rents of these lands have doubled within twenty-five or thirty years, proves nothing in favour of the system, but rather against it. Let the value of money again rise; that of agricultural produce proportionably fall; the art of husbandry be reduced to the standard of the middle of the last century—and mark the rents which would then be obtained for such deteriorated farms.

When the leases were granted, to which reference by the Secretary is made, the average price of wheat did not much, if at all, exceed 5*s*. per bushel. So much is the value of money decreased in that time, that that price for wheat was then a better bargain to the grower than 8*s*. or 9*s*. a bushel now. The nominal value of rent will clearly have kept pace with the depreciation in the current medium of the country; and as from this it seems clear, that as the mere change in the circumstances of the times would alone have produced the whole advance upon which Mr. Young makes his greatest dependence for justifying the practice of paring and burning, generally, what ought we not now to add for the pretended excellence of that system, when combined with improvements that have been made in practical husbandry within that period, particularly in the culture of green crops, tares, turnips, and the temporary grasses. Yet notwithstanding this progress, and which is certainly the most important that agriculture ever received in so short a time, there does not appear to be so many sheep kept on those deteriorated lands, though of a smaller size than their stock formerly. Far be it, however, from the design of the Surveyor, to wish to be understood as opposed to the practice of paring and burning generally; on the contrary, no one can entertain a higher opinion of its value, or would sooner resort to it than himself, in appropriate situations, and which he has all along stated to be the most proper and effectual for subduing heaths, moors, bogs, peat-mosses, and all soils abounding with a large proportion of vegetable mould, and producing a rough, sedgy, coarse, and wiery herbage; but these coarse and unprofitable coverings once destroyed, it should never again be resorted to on lands possessing a sound dry bottom, whether natural, or artificially so produced by judicious draining. Fens, bogs, and mosses, possessing a considerable depth of peat, moor, or other vegetable matter, and which, if not well and effectually drained, will always preserve a tendency to return to their primitive condition: to prevent which, and to draw from such lands the full value of the produce they are capable of yielding, paring and burning is proper, and ought to be repeated.

Old pastures also on close retentive subsoil, become degenerate in their herbage by the prevalence of too much moisture: such lands, after being thoroughly drained, should also be opened for a few years to the meliorating influence of the plough, and then again laid down (if not too stubborn) for permanent pasture, otherwise kept under aration, and employed in the culture of wheat, beans, grey pease, oats, tares, rape, and clover. On these points the Surveyor wishes to refer to his former sentiments (Vide Cambridgeshire Report, page 199).

In speaking of the vegetable productions of the earth, and the same will equally apply, though on a less extended scale, throughout animated nature, it has been observed, that the dissolution of one body is not only rendered subservient, but indispensable to the propagation, growth, and perfection of another. Although a due proportion of the primary earths, possessing the most desirable temperature of warmth and moisture, is by far the most suitable bed for raising articles for human convenience and consumption, yet a soil *purely* thus composed and dressed with any proportion of stimulant manures (in which, however, ashes are not meant to be included), will for ever remain barren and unproductive, unless there is thrown into it the remains or excrement of former animal and vegetable bodies. These exuviæ exist in an infinity of forms, but those only that are cognizable to our senses, we are capable of employing as direct and feeding manures, some of which may be tolerably well conceived as follows:

Farm-Yard, Stable, and Town-Dung—From their containing, when completely decomposed, reduced to a mucilaginous state, combined, and chemically united ed with water, all that food or pabulum which the vegetable kingdom is prone to receive or take in by its roots.

Woollen Rags—From their containing a large proportion of fermentable animal mucilage given out by putrefaction, about 6 cwt. cut small, is a good fair dressing for an acre of land; they are best applied for wheat, and should be either lightly ploughed under, or harrowed in with the seed. From their mechanical operation in the first instance, it will seem that they are by far the best adapted to strong loam and clayey land.

Old Mud Walls—From the nitrous principle absorbed from the air, or the hydrogen, or carbonic acid gas, by which they have been highly charged from their inhabitants. These walls, from the nature of the loam of which they are generally made, are better adapted as a manure for light than strong lands: they always act powerfully when applied for turnips.

Shells of all sorts—From their calcareous principle, and the animal gluten they contain, which after dissolution becomes miscible with water, and enters with it as a feeding principle into the roots of plants.

Sea, Pond, and River Weed—By putrefaction become the direct food of plants.

Night-Soil, or Privy Manure, and Urine.—These, with all other excremental substances of birds and beasts, and according to the respective habits of such animals, are more or less excellent manures, and too much pains cannot be used in collecting them together.

The first or prime class of these manures proceed from carnivorous animals; the second from birds that feed on pulse and grain; the third from horses; the fourth from sheep; the fifth from grazing bullocks; the sixth from milch cows, neat stock, and rabbits.

Pond, and River Mud—Contain large portions of the feeding principle in manure, but it should always be exposed for one winter at least to the action of the frost, and be several times turned over before it is spread upon the ground. When used in a raw state from the bed in which it may have accumulated, it is uniformly found to encourage the growth of arsmart, coltsfoot, crowpeck, &c. in considerable quantities, and in which state (on its first application at least) is found to produce a far greater injury than benefit to the land.

Refuse Fish and Blubber—Being resolved by putrefaction into a mucus, supplies a large portion of the direct food for plants. This, as well as night-soil and all other unmixed excrements, are best distributed into composts. Vast numbers of sturgeon are annually taken in the spring of the year, and at the time of the shad fishery in the Delaware, and other large rivers in the United States of North America: these are purchased of the fishermen by the neighbouring farmers, for about a quarter of a dollar each, and for the sole purpose of making a rich addition to their dung heaps.

Rape and Malt-Dust—By decomposition, yield a mucilage which contributes essentially to the nourishment of plants.

Sheep-folding.—However fashionable it may be for modern theorists to hold this practice in derision as an unjustifiable barbarism, robbing one part of the occupation for the benefit of the other, still in all heath and down countries, and where by far the finest corn is produced in the island; where the farms are large, and that a great part of the occupation lies altogether out of the reach of any assistance from the homestead, and equally that of foreign portable manure, were it not under these circumstances for the sheep-fold, woeful would be the appearance of such a country indeed. The advantage derived also to all light soils, particularly when under winter corn, by the trampling of the sheep, is great beyond calculation. The number of sheep required under different circumstances to give the land a good fair dressing, has already been stated in a preceding part of this Report.

Soot—Is a manure which, from its uniform quick operation, must become soon soluble, and be either capable of combining with water, or by some other means contribute to the formation of a gas, that is greedily taken in by adjacent vegetables. In its highly diffused state of smoke it vanishes from our view, and consequently becomes attenuated in a very high degree, and although in its condensed and collected body as soot, it becomes more cognizable to our senses, its power of divisibility may not be impaired, and as such it is most probable from natural affinity, it acts as a food for the vegetable kingdom. It is also found to be an admirable specific against worms and worm-casts on rich lawns and pleasure grounds.

Peat-Moss, Moor, Bog Earth, or Turf Mould.—From the situation and other circumstances attending the existence of this substance, it is plain, that it has always been produced from the absence of heat, combined with too much moisture; to the influence of either independent of each other, or if not so produced, it must have originated from causes altogether foreign from the uniform phenomenon it exhibits, and in a manner utterly out of the power of the Author of this Report to explain or comprehend. A great extent, however, of the surface of this county, and that of the British islands in general, is occupied with this substance, and which for time immemorial has remained in its present state, and in a manner useless to the country at large. The conversion of a part of this ancient vegetation into the nourishment of plants, by the discovery of some ready menstruum by which it might be rendered soluble in water, would be worthy the utmost stretch of human ingenuity to accomplish, and exhibit for the benefit of mankind! This must prove in comparison with all other sources of manure possessing a direct and feeding quality, very great indeed; and which might then be afforded in almost inexhaustible quantities by all the fens, bogs, heaths, and mountains, in these united kingdoms.

Peat, Beat, and Turf-Ashes—From their mechanical operation in stiff soils, and the quantum of alkaline salts they may respectively contain, produce a meliorating and feeding effect upon all lands requiring an instrumental operation, and a direct manure. The good effects of the Berkshire peat-ashes may be referred to another principle, in addition to what is possessed by such ashes in general; this arises from a considerable proportion of their bulk consisting of shells and other calcareous matter, which form the resting place of those peat moors, and which is burned with the vegetable substances into lime; hence they are always of a distinguished consistence, colour, and quality, from peat-ashes in general.

Common Sea Salt—Might be used beneficially as a feeding manure in small quantities, did not the enormous duty which it pays, preclude all expectation of using it for such purposes.

It has been long determined, and daily experience proves the truth of the decision, that all vegetables derive their nourishment in two ways: the one by absorption of certain gases or vapour which are generated by, and exhaled from, all decayed and putrefying bodies, and which is greedily taken in by the stems and leaves of all living plants; the other by their roots, which receive decomposed animal and vegetable substances, when so far attenuated as to be capable of a chemical union with water. In the application of these subjects it may be necessary to add a few words, and which are chiefly extracted from the Surveyor's former labours in the county of Essex.

"The first consideration which naturally occurs to an active intelligent farmer upon this subject, is that of preparing and fitting his soil for the reception of such manures as in the course of his lease he may be able to collect, for improving and annually recruiting his exhausted lands. Previous and effectual draining (by open and hollow drains) the wet heavy parts of his farm, and afterwards applying the alteratives of chalk, clay, marl, sand, or gravel, though at the expense of a nine miles' carriage to the first of these articles, and which is practised in some parts of this county (Hants), and applying thirty tons to the acre, will not discourage him, seeing that in consequence of such alterative manures the land becomes more tractable and fruitful, and which, under proper management, he knows it may be made to retain for a great number of years.

The calcareous and argillaceous marl applied with such effect in the southern parts of this county, requires little farther, in the judgment of the Surveyor, to be attended to, than to apply it as much as possible upon lay, rather than upon ploughed ground, and as its effects are merely mechanical, great care should be taken to keep it incorporated with the surface mould, and to prevent it as much as possible from descending upon the lighter lands beyond the reach of the share; for which purpose the first operation after marling should be raftering as thin as possible, and after the raftered balks have been well dragged and harrowed, the cross-ploughing, or taking of them up, cannot be performed too shallow, provided that the ground is ploughed clean. By these means the marl will become diffused through the top-mould; its specific gravity will be reduced; and there will be a much better chance of preserving it incorporated with the soil, than had the marled land (a practice by no means uncommon) been ploughed to a full pitch in the first instance, and the marl consequently inverted upon the bottom of the furrow.

In the application of sand, gravel, pounded limestone, or limestone gravel, to the stiff heavy lands, care should be taken to apply it in quantities sufficient to overcome the natural cohesion of the soil, as is clearly evinced by the practice of carrying the red sandy loams on the stiffer lands in the parish of Brixton in the Isle of Wight, for if there is too small a quantity used, a directly opposite effect will follow; the land will become chisselly, and acquire a disposition to run and cement together, and thus instead of the tough clayey soil being brought to a more gentle temperament, their natural tendency to run together will be increased, to bake and crust upon the surface after rain, and every fresh ploughing.

In applying clay marl, or any apparently unctuous or soapy matter, to soils containing a superabundance of sand or gravel, the same caution is by no means necessary, as under the most convenient and favourable opportunities for procuring these materials, there would be little danger of so vast a quantity being carried upon the land as would contribute in the smallest degree towards producing a similar effect.

In every soil, be its nature what it may, occasional dressings of lime are indispensably necessary, to act upon the undissolved animal and vegetable bodies they may contain; thus producing fermentation and vapour, and giving to such substances that degree of solubility, without which it is impossible they can afford any direct nourishment to plants. The well known property of caustic lime, which so rapidly dissolves the texture and organization of all bodies, whether animal or vegetable, should be an object of serious study and consideration to the improving farmer, who ought to be well satisfied of the fact, and to have it ascertained with the utmost certainty, whether there is or is not, from the peculiar condition of his soil, a direct and positive demand for such a dressing; if on examination it should be found to contain a considerable portion of animal or vegetable matter, and which a very easy analysis would readily determine (Vide Devon Report), there will be no question but lime would be of service, but which upon all and every occasion should be applied by itself, unmixed with any other matter, immediately slightly covered, and in its freshest, hottest, and most caustic state.

In this view, and rather as a stimulating principle acting upon other subjects, rather than containing any supplies of vegetable food within itself, we are chiefly to regard its operation in the earth; and whether in its disorganizing process it converts the whole or a part only of the animal and vegetable substances with which it comes in contact, into the immediate* pabulum or food of plants; and that the remainder, by subsequent union with other bodies, becomes locked up as it were in an insoluble state, but capable of being dissolved again, and converted into vegetable food by the application of acids or other alkali, is a question of too much importance to the agriculture of these kingdoms, to be cartlessly overlooked by the chemical agriculturist, as thereby a supply of vegetable food may probably be discovered, which, if satisfactorily explained, and placed in such a point of view, as to enable the occupiers of old and apparently exhausted chalked and limed lands throughout the kingdom, to restore and bring into action that quantity of vegetable food which may have lain dormant for ages, would be a discovery indeed! Whoever, by superior talents or unwearied application, shall be so fortunate as to develop this mysterious suggestion, with that of the means of rendering peat-moss soluble in water, to mankind, will assuredly rank higher in the estimation of man in general, but of the inhabitants of these islands in particular, than any of the most justly celebrated characters in ancient or modern times.

From the present mode of applying lime, at least in the south and west of England, its causticity is lost before it reaches the field, and differs very little from chalk or mild calx, save that in its complete impalpable pulverization: its causticity is lost, and expended in the mixing or compost heaps, and the gas or vapour generated in the putrefactive process being thrown off into the surrounding atmosphere (but which in its proper situation would have materially aided a growing crop), is thus improvidently lost as a benefit to the farmer, and dissipated by the wind.

With chalk, as with lime and all other calcareous earth, animal and vegetable matter will to a certain degree combine, and in that combination produce fermentation and vapour, or form something that shall be soluble in water; in either case there is evidently a chemical action, the effects of which contribute largely to the powers of vegetation. Hence arises the necessity and usefulness of a certain portion of calcareous earth in all soils whatever, and where it is not found to exist in a manner cognizable to our senses, it may fairly be supposed as being supplied by rain water, which by analysis is found to contain, of calcareous earth, in the proportion of 680 to 1; of clay, 7700 to 1; and of silex, 10,000 to 1.

So long as chalk, pounded limestone, &c. remains in an imperfectly dissolved state in the soil, they act as it were mechanically, and render the tough strong clays, tile, and brick-earths, more tractable. But the whole of these calcareous bodies are, from their specific gravitation, or very minute diffusion in water, capable of being carried downwards; an effect which may be witnessed on the cliffs of the Isle of Wight and other places in the county, and which after some years, in almost every soil, must necessarily take place, when such lands will consequently be washed and freed from the calcareous earth. Here the mechanical action of the chalk must cease, nor may it be advisable to renew it, *quoad* its beneficial effects mechanically; as it is presumed, and not without good reason, that in like manner with lime, it has a tendency to lock up a large portion of vegetable food in an insoluble state, but capable of being dissolved with acid, or some other alkali to which the insoluble matter may have a greater affinity than to that of calcareous earth; an opinion strongly supported by the preference generally given to soapers' waste lees and ashlip upon old chalked grounds, rather than to attempt a renovation of the land by a new chalking. What but some such cause, can have produced that universal dislike among all the farmers in the southern parts of this county, against marling land a second time?

Of this marl it has been before observed, that there are three sorts—the blue, the white, and the red. Some few veins of the white are occasionally met with, unmixed with the red or blue; this however is rare, as they are most commonly found mixed together. The manner of applying this marl has been already noticed, with its effect; we shall therefore, though not without much reluctance, close this brief Survey of a subject which can never cease to interest every one possessing a turn for agricultural improvements, by saying a few words farther on the application of manures in general, and which, when applied upon the surface, or what is generally called top-dressing; or whether such manure should be ploughed or harrowed under, with a view of mixing it more intimately with the soil, ought, in the opinion of the Author, to be chiefly regulated by the following considerations.

First, Whether the soil is of such a nature to require any correction in its temperament, to render it more or less tender, open, or friable?

Secondly, Whether the manure proposed to be employed, is capable of operating to those ends?

Thirdly, Whether such manure is capable of affording nourishment to plants, unless it is brought into close and immediate contact with some other power, or latent principle containing vegetable food in the soil? or,

Fourthly, Whether the plants proposed to be fed by such manures, draw their nourishment principally from the ground?

In the affirmative of all these cases, it is plain that the manure should be covered, or lightly ploughed under.

But when the manure is of such a nature as to apply but lightly to these considerations; when it is capable of being dissolved on the surface, and conveyed by water downwards to the roots of the plants, or by conversion into vapour, to be absorbed by their stems or leaves, and that the plant is equally prone to receive its nourishment in both ways, the economy and effective operation of top-dressing is unquestionably the most highly beneficial, and is greatly to be preferred.

The preserving, procuring, and applying with judgment, these the only pabula of the vegetable kingdom, is a subject worthy our most serious consideration, but which the limits prescribed to this Report will not admit of a farther discussion at this time.

Wastes and Forests.—The origin and nature of common rights, together with the history and present government of the Royal Forests in this county, would certainly form a suitable introduction to what the Surveyor has to remark on the means which the wastes and forests of this county contain for improvement, and the measures he may conceive best suited for effecting that purpose; but as such histories and statements have already been given at large, in the Reports of Commissioners expressly appointed for the investigation of those subjects, as well as in what may already have been laid before Parliament by the Honourable Board of Agriculture, none of which however have been within the reach or in the power of the Author of this Report to obtain, he must therefore beg the indulgence of the Honourable Board, if in the following desultory observations, which arise wholly from impressions he received upon the Survey, any thing should appear crude or inapplicable, and which, under other circumstances, he would not have ventured to have stated in so seemingly loose a manner for the consideration of the Honourable Board.

As daily observation and experience most clearly shews that Nature does not any thing in vain, and as the surface of the terraqueous globe is the destined habitation of man, from which, by the union of his mental and corporeal powers, he is enabled to draw his aliment and all the necessary supplies of life, the appropriating to these purposes whatever the Deity may have spread before him, and placed within his reach, is not only natural, but a duty highly incumbent upon him so to do.

From the operation of causes, partly physical, a vast extent of the national territory (and of which this county has a considerable share) is left in a state of nature, unproductive to individuals or the community.

Was the territory of the British empire in Europe, from its insulated character, not confined to a specific area, but, like the government of America, capable of spreading a thin population over an almost unlimited extent of acres, the policy of suffering large uncultivated tracts to intervene between the inhabitants of the same government, would assuredly admit of some question; for although this might not operate in repressing the progress of population, it would certainly tend to alienate the different settlements from each other, ultimately contribute to erect the respective communities into independent tribes, and thus on cases of emergency, weaken the power of concert, and of acting with union and effect as a congregated body; but in so confined and insular a situation as Britain, to have so large an extent of its territory interdicted from the use and energies of the nation, is a solecism in politics so very extraordinary, as scarcely to be met with under any other government, which may fairly boast in other respects the like degree of improvement and civilization with ourselves.

To mitigate, however, the miseries which this melancholy, but too plain prospect, exhibits to our view, some steps should be taken, and those without delay, from the expected benefit of which the public mind would be encouraged to bear its present burthen, under a hope and even persuasion, that it had already sustained its greatest pressure, and that time and the prudent administration of the Government would gradually relieve it from farther suffering.

There are certainly many circumstances under the controul of the Government of the country, that would materially contribute to this end, and thus afford a cheering ray to the people at large; but the one only which at this time comes properly within the view of this Report, is that of laying open to the industry, skill, and capital of the nation, such parts of the national territory, which hitherto have been prevented from contributing their proportion to the public good.

If we consider the aggregate extent and quality of the forests and waste lands of this kingdom as lying in the English channel, or any where in an equally favoured climate on the coast of the island, would not the most unsparing efforts be made by Government to conquer and secure them, not less for the addition which such possessions would make to the national stock, than for the advantage they might afford in a commercial or hostile point of view, against the efforts of our enemies. Will the government then continue less attentive to the realising of such important advantages, and those in the very heart of the empire, at the very threshold of the throne? Surely it ought not.

To effect, however, the purposes which the Surveyor has most earnestly at heart, in respect to the just appropriation of the whole of the national territory (as the only permanent means of augmenting our national strength), he with all due deference begs leave to submit the following propositions.

First, That an act of legislature should pass, for ascertaining the value of all claims and common rights which at present attach upon all the royal forests in the kingdom.

That the value of all such claims should be discharged by a land commutation, to be set out in allotments as contiguous as possible to the present estates of such claimants.

That a certain number of acres should be imparked and kept stocked with deer, for amusement and for the use of the royal table.

That the remainder of all such wastes and forests should be surveyed and cast into allotments of various dimensions, engraved plans of which should be published and exhibited through the kingdom, with notice that such allotments would be sold by public auction at stated times, and in the vicinage where such lands might be (the nett proceeds of which should be paid without defalcation into the treasury or exchequer of the nation).

That should this last proposition prove inadmissible, a full and particular examination of the soil and substrata of all such wastes, chases, and forests, in the kingdom, should be made, and appropriately classed as follows:

First, Into lands adapted for the purpose of raising corn, hemp, and flax, ash and elm timber, raising and grazing sheep and cattle.

Secondly, For raising timber exclusively for the use of the Royal Navy.

Thirdly, For raising larch, sweet chesnut, and the white mulberry.

Fourthly, For raising Scotch fir, and the fir and pine tribe generally.

That on a due examination of the wastes and forests, these respective classes should be staked out by persons properly qualified for such service, and a correct mensuration, survey, and map thereof should be made, general and particular, accompanied with a full and succinct report, specifying the nature of the soil and substrata of each denomination: how far draining may be required, and from a due examination of the lay and structure of the country, what sort of drains would most effectually relieve and preserve the soil in a sound dry state, and proper for the purpose of vegetation; what would be the most appropriate form for the mounds of the outside and subdivision fences, with a due regard to the making of their ditches subservient to the purposes of draining; what species of hedge-row wood, would be most advisable to cultivate for use and shelter; and to what extent either ash or elm might, from the nature of the soil, be cultivated with advantage upon or near such mounds or hedge-rows.

Whether the allotment or district in question contains any natural manure within itself, such as marl, chalk, clay, ouze, limestone, limestone gravel, &c. and how far the application of any of such manures on the respective soils might tend to their improvement: and whether the mixing of the soil or surface covering of the respective allotments would lead to the correcting of their natural defects, and render them more fit for the purpose of tillage and vegetation.

What distance the allotments in question may be from any large town, and what are their facilities by the means of canals or tram-roads, or vicinity to maritime navigation, for the disposal of the produce of such tracts, or for procuring manure, whether of an alterative, stimulant, or feeding nature; whether such tracts are best calculated for the culture of animal or vegetable food, and of what species respectively.

What, in the estimation of the Reporter, would be the expense of forming the necessary outside and subdivision fences; of constructing buildings; expenditure for live and dead stock; and in effecting so much of the above enumerated improvements on each particular allotment, as may be necessary for the first establishment, and before the proceeds of the occupation may in some sort be able to clear itself.

The Report should also state the sort of fence, and expense attending the raising it, for enclosing the timber allotments; the expense likely to be incurred, and the best mode of stocking such allotments with young trees; with the motives by which the Surveyor had been governed for giving to these allotments any particular extent or direction.

The veins of strong sour oak tree, or woodland clay, would very well be indicated through all the wastes and forests of the kingdom, had the country remained in its primitive state, and that its voluntary growth of timber had not been so far destroyed, as in many places to leave not the smallest vestige of what it formerly was covered with. It therefore behoves the person or persons to whom the examination of the waste lands should be entrusted, to study well, and become practically acquainted with the nature of the soil and substrata, with all the shades of difference, that aspect and locality of situation, as well as soil and substrata, may contribute to produce and effect the growth of oak timber. To which end, such person or persons should examine and minute very particularly all such circumstances in those districts which exhibit the cleanest, most flourishing, and luxuriant growth of oak timber; the want of such discrimination having led to very great errors in some of the enclosures made in the New Forest for raising oak timber.

Oak will certainly grow upon the argillaceous and even calcareous marl, when superinduced by sand or gravel; but it surely would be as idle to apply such soil and substrata to the culture of oak, as it would a thin gravelly soil, resting upon a deep and almost unfathomable bed of dry sand, and harsh gravel. These things, however, have been done, and it is still equally hoped, and feared, whether such mistakes will or will not be avoided in future.

In the forests of America the quality of the land is uniformly indicated by the nature of its spontaneous growth; and to one at all experienced in these matters, there is no sort of difficulty in making as correct a choice of the soil and substrata proper for any specific purpose, than were the same already declared by the voluntary productions of such land.

Although the European beech is found mostly to flourish in a dry situation, yet in America this tree usually occupies the low grounds on the margin of the water-courses; and the beech swamps in the north-west territory of the United States, on the waters of White river, are some of the heaviest timbered land the Surveyor ever beheld east of the lakes in Canada. This is a wood which seems much to flourish in the soil and climate of Hampshire; and notwithstanding its general disposition in this country to favour a dry subsoil, it grows with considerable vigour upon all the oak tree clays in the New Forest.

As there is no trace whatever of any former cultivation upon most of the present wild uncultivated heaths, whether within or without the boundaries of the forests in this county, the same lands which are now covered with ling and heather, are supposed to have been much in the same condition, save in their not containing such large and deep quantities of vegetable mould or turf moor, before the afforestation took place. That these lands, however (after being effectually drained where required), are capable of adding much to the value of our insular situation, by appropriating them in the manner implied in the third and fourth classes of these wastes, is a conviction as clearly imprinted on the mind of the Surveyor, as is that of the consciousness of his own existence.

The value of the larch is now too well known, to require or to derive any additional recommendation to its culture from the feeble encomiums which might be bestowed upon it by the Author of this Report.

The value and importance of sweet chesnut, once, to a considerable extent, the native inhabitant of all our woods and forests, and second only for strong and permanent work to the oak of the island, is now gradually recovering its former rank and consequence as a timber of this island: fortunately it favours a soil and situation the very reverse of that which appears to be essential to the successful culture of the oak.

The situations in America in which the Surveyor has seen immense forests of this wood intermixed with the wild mulberry tree, has, with the complaints uniformly heard from the silk throwers, winders, and manufacturers of this county, as to the increased difficulty of procuring the raw material (particularly the warp) from abroad, suggested to him the idea of establishing the culture of the mulberry tree, and consequently the raising of silk-worms in this country. In conversing with several gentlemen on this subject, reference was made to Campbell's Political Survey, from which the following most valuable extract is taken:

"The county of Southampton enjoys every advantage that can well be desired in any county. A very ingenious and inquisitive antiquary is of opinion, that it was very fully peopled by the Albanites, as he styles them, who were invaded, subdued, and exterminated, by the Belgiæ, before the coming over of the Romans. That mighty nation, in the reign of the Emperor Claudius, intending an absolute conquest of Britain, made their first descent on these parts, and being once become masters, shewed a great regard for, and exercised amazing labour, skill, and industry, in the improvement of this beautiful province. The Saxons, have left very noble marks of their having paid a like attention to what in their language is called Hamtunscyre; for in this county there were no less than 40 hundreds, whereas in Warwickshire, which is more than half as big, there were but four, or including the liberty of Coventry, at most but five. As hundreds were divisions founded on the number of families, so by comparing these with the territory that contained them, we may judge of the proportion, comparatively at least, in which they were peopled. Of this we should have been still more sensible, if many of the Saxon towns and villages had not been ruined by the Danes, or if the Norman Conqueror, whether out of pride or policy, or from both, had not levelled such a number of villages to make his New Forest, and shewed the true spirit of his government, in subverting the habitation of man to provide a range and receptacle for wild beasts. But notwithstanding all these devastations, there still remains so many good towns, magnificent churches, venerable abbies, strong castles, and stately palaces of ancient execution, as absolutely demonstrate the wealth of its inhabitants in former times, and the peculiar affection of its civilized masters. It was heretofore justly celebrated for its timber, which, though much decreased, is yet far from being exhausted, and the stock of which might be easily recruited, not more to the advantage of succeeding generations, than to the benefit of the nation in general.

" Fertile in all kinds of grain, but more especially in fine wheat, as well as for admirable hops; abounding in wool, bacon, and honey, of an extent little short of a million of acres, exclusive of the Isle of Wight, so that it is larger than the duchy of Juliers, twice as large as that of Mantua, and containing thrice as much land as the island of Minorca; inferior certainly to none of these, even in its present productions, and still less so in the capacity of admitting farther improvements. The making of salt, by boiling sea water, is performed to great perfection and profit at Lymington and in Portsea Island. Large quantities of malt are made at Andover and Basingstoke. Silk stockings and leather are the support of the inhabitants of Ringwood. Narrow cloths, druggets, and shalloons, are wrought in many places: broad cloths at Rumsey. Wheelwrights, and other mechanics who work in stone and timber, in every part of the county. Ship-building, however, was and is the capital manufacture of this county, and employs multitudes at Southampton, Lymington, Portsmouth, Bursledon, and Redbridge. The great demands, more especially in time of war, for provisions of all kinds at Portsmouth, is a constant source of wealth to the industrious cultivators of the country within reach of this market. Notwithstanding that a great deal of grape wine is already made by the industrious inhabitants of this county, Sussex, and Dorset, and that this county does not lie above three degrees to the north of those provinces which produce the finest wines in France, still, as we have already a most invigorating and wholesome beverage established in the place of the light wines of France or the Palatinate, it does not appear advisable that any application of the national industry should be directed to that end.

" But there is yet another improvement that might with a still greater probability of success be attempted, and which, if properly attended to, might be cultimuch to prey upon the dwarf alder, the leaves of the wild crab, and of the common orchard apple trees in that country, and as the Surveyor, during his last excursion through Pennsylvania, Virginia, and the western parts of the United States, saw a number of families much employed in the raising of these insects, and with whom he also saw many specimen of strong good silk, spun by the native worms; would it not be worth the pains of a trial, to procure a number of the American pods or cocons, in which the worms spin themselves up, and lie concealed during winter? These might be brought over in the preceding autumn, and as they are found to lie much longer in the nymph or chrysalis state, than the eastern worms, there would be no danger of their appearing in their eating state before the returning spring would have prepared plenty of food for them, and which in the event of a deficiency, or miscarriage to a certain extent of the culture of the mulberry, unquestionably their most favoured and proper food, the establishment might still be carried on, and the worms supported on the leaves of the shrubs and trees most common to this country.

The cocons the Surveyor has seen in America, are generally about an inch in their longest, and half an inch in their shortest diameter. The silk appears to lie in several concentric leaves or strata, resting one upon the other, and apparently corresponding with the pauses the insect made whilst spinning it; but these are still connected, and in continuation, or it would otherwise be impossible to wind them off. It is an easy matter to take off one or more of these layers, the uppermost of which is coarser, less gummed, and of an higher colour, than the undermost. These cocons produce thread of an unequal length, some yielding a thousand, whilst others would not afford two hundred yards. The average produce however of the American cocon, may be stated at 400 yards of single thread.

The worm, as it is enclosed in its cocon, is so shrunk up, as to reduce it to about half its former length; but on the other hand, it is nearly as thick again. In this state it is full of a rather clear liquor, which forms the seed of the males and the eggs of the females: they have however no sex till they undergo the change from the worm into the fly state.

Immediately on coming out of the cocons, the male seeks the female, and very soon expires after his functions are performed; as does the female also after laying her eggs. This last stage of their existence seldom exceeds forty-eight hours for the male, and sixty for the female fly.

The silk is wound from the cocons in warm water, and generally about four threads together. In this state it is most commonly imported as a raw material from the Levant or the East Indies to England.

The examples formerly detailed, of the quick growth of the Scotch and silver fir (Vide Devon Report), the vast quantities of fuel produced by thinning and pruning the plantations of the former, and the great value as timber, to which the whole of this tribe is capable of attaining in the soil and climate of this country, are quite sufficient to warrant the fullest expectation, that an adequate supply of this timber may be obtained from the national territory, should the countries from which it has hitherto been obtained in the greatest quantities, be at any future period, as at this time, closed against us.

It will most probably be demanded, how the claims of the poor upon these wastes are to be adjusted, particularly in respect to fuel? In answer, it is said, that the Commissioners appointed for allotting and setting out the waste lands and forests under regulations somewhat similar to those above hinted at, should be instructed and empowered to set a-part in all eligible situations, such parcels of the best of the turbary ground the respective districts may contain, and in quantities sufficient to yield the ordinary supply of fuel, until that supply may be assisted with the pruning and thinnings of the young fir plantations, and such other combustible substances as must necessarily be produced by the general and extensive improvements by planting, and otherwise, in the contemplation of the Author of this Report, but which on all occasions should be limited in quantity to the several families in the district, and issued to them under fixed but liberal regulations, by the Deputy Surveyor of the woods and plantations, and upon such terms as barely to defray the expense of cutting, collecting, and binding it into facines and bavins.

By some well digested regulations of this nature, an infinitely larger portion of fuel might be raised for the use of the rural inhabitants, than they are generally within the reach of at present; whilst, at the same time, those barren and dreary tracts would not only contribute to our convenience, and the augmentation of our strength and resources at home, but render us still more formidable, independent, and respectable abroad.

Before he quits the subject of woods and plantations, and a discussion of such measures as appear to the Surveyor the most likely to promote the growth of timber in the kingdom, it becomes necessary, from observations made upon the journey, to advert to the present state of the timber on the church and other demesnes belonging to corporate bodies, and which have not already been noticed in this Survey.

A great obstacle to the cultivation and growth of timber upon these lands, arises from the tenures under which a large proportion of the country is held. These tenures consist of leaseholds for 21 years, renewable every seven; the fine for which, fluctuates between one and a quarter and one and an half year's improved value. The occupier having no interest in the timber growing on such estates, beyond what may be wanted for its immediate repair, naturally becomes rather more than indifferent as to its preservation, well knowing that when such timber is ripe and ready for cutting down, it will be felled by the corporate bodies to whom such estates respectively belong, and this often without regard to its being ornamental or otherwise, and very rarely with any previous preparation or subsequent effort to replace it with plantations, or a successive growth. The destruction and havoc that is thus made under the sanction of such authority on these estates, is not less injurious to the succeeding incumbents than it is detrimental to the interests of the public at large.

The remedy which, in the judgment of the Surveyor, appears most proper to be adopted on this occasion, is to have the whole of the timber valued on such premises; the legal interest accruing on such valuations to be laid as an additional quit-rent on such estates, with full power to the tenant to plant and cut down at what time, and in what manner he pleases, any timber that may be growing on such estates. If some such regulations as these do not shortly take place, it does not appear that there will be much other than old pollards growing on such property. The

forests

forests of Bere and Bishop's Waltham, with innumerable enclosed estates, exhibit striking proofs of the truth of this statement.

It will probably be objected, that the giving the tenants so unlimited a controul over the timber, would in most cases subject it to inevitable destruction; to which it may be answered, that the tenants of such estates, although granted to them for twenty-one years, being renewable every seven years, are from long usage, and the general custom of the country, regarded as leaseholds of inheritance, and which have continued in the same families for an immemorial length of time, and are to all intents and purposes, leases in perpetuity renewable at such times.

Families thus circumstanced, would, it is conceived, be less liable to cut down or prematurely to destroy either useful or ornamental timber, than the corporation or incumbents of such estates, whether of the church, companies, or any other pious foundation whose respective interests in such estates are temporary, and consequently, whose sole or principal object, whilst in the possession of such endowments, *is revenue for the time being, and that drawn and selected from such estates by persons whose emolument will very much depend on the annual amount they may be able to produce.*

From these considerations duly weighed, there remains little doubt with the Author of this Report, that some arrangement, bottomed on the principles above stated, guaranteed, protected, and enforced by the plan lately proposed for the culture and conservation of oak timber by the Surveyor, in his Devonshire Report, would prove the most effectual means of remedying the evils so generally to be met with, as to the neglect of cultivation and premature cutting down of oak timber throughout this kingdom.

The number of wide and unprofitable hedge-rows preserved upon the church and college lands, for the ostensible purpose of encouraging the growth of oak timber, are nuisances, particularly in a corn country, which ought to be removed.

It has been already noticed in the preceding part of this Report, that great advantages are derived from the culture of flax, not only as a material for manufacture, but as an important article in the food of finishing off fattening cattle. From the effects of Mr. Seaward's practice, duly considered, it becomes a matter of question, whether the general interdict prevailing against the culture of flax, might not in some cases admit of modification, and in others be entirely done away; but in both, upon the express condition, *that the flax seed produced upon the premises should be there expended for the purpose of feeding cattle.*

Upon all new reclaimed ground, and such as may have been completely drained, yet still retaining a moist subsoil, flax should be made a leading article in its first husbandry. The culture and subsequent management of this crop being so well known and practised in these united kingdoms, does not appear to demand in this place a farther examination; this, however, is not the case with regard to

Hemp—The culture of which, though partially practised, is not so generally understood in these islands. A soil replete with the carbonic principle, but at the same time one that lies upon a dry and open bottom, is that which this plant favours most. This is a plant of so much consequence to the maritime existence of this empire, that unless Government can command either at home or from abroad, an ample supply of this important article, it will be impossible for us to maintain our marine, and our consequent independence.

As it is in a great measure unnecessary to detail the culture and subsequent management of this crop, as practised in Lincoln and Cambridgeshire, and in many other parts of the united kingdoms, and which differs in no very material degree from flax; the Surveyor, with permission of the Honourable Board, will take the liberty of submitting the amount of such observations as he has had an opportunity of making upon the culture and subsequent management of this truly valuable plant in the interior States of North America.

The soil and situation which this plant mostly favours, is that of a sand and gravelly loam of a good staple, well charged with the remains of animal and vegetable bodies, and lying upon a sound dry bottom. Land of this description that may not be naturally dry, but which by judicious draining may have been rendered sound and firm, is equally eligible for the culture of this plant. The nature of the soil and situation thus ascertained, we come next to the part that requires the greatest attention, that of the tillage. For the sake of facilitating this operation, and giving to the tilth that light and open texture so favourable to the uniform growth of the hemp, it is generally practised, and would always be advisable, to winter-fallow the land proposed for this crop, leaving it all winter in two-furrow ridges, and which, if necessary, should be left as well gripped and water-furrowed, as were a crop of wheat expected from the land. In this condition, and about the middle of May, the two-furrow ridges should be crossed, harrowed,

rowed, and ploughed into four or five turn lands, and taking the advantage of the ground being in the most favourable state for vegetation, about two bushels of seed should be sown per acre, and harrowed in with a pair of light harrows, exactly suited to the size of the lands, lengthwise, once or twice in a place, the horses walking in the furrows each time, and the sown ground trampled but as little as possible, as a single foot track has been known very much to repress the growth of the young hemp plants. The surface of the hemp field should therefore be left uniformly light and spongy, and which, should the season prove favourable, would induce a regular plant of hemp, which once up and covering the ground, there is little to be dreaded from the drought of the ensuing season. The small ridges here noticed for the hemp, is for the convenience of of going along the furrows, to draw out the male hemp without disturbing the female plants, and those which are found afterwards to produce the seed. When the hemp ground is properly seeded, and that the hemp plant is not too thin upon the ground, it ought to have nearly the closeness of a crop of wheat, and the straight upright stems very little thicker, by which means the hemp will be of a finer quality than were it to grow singly, and branch out with greater luxuriance.

The male hemp having attained its growth, and which from the strength of the soil will vary from three and a half to six and a half feet in height, the time for drawing it will be denoted by the lower leaves of the male hemp turning of an olive and yellow colour, and falling off. The sooner it is then pulled the better, when it should be bound into single band sheaves, and carried to the head-land or side of the field, for the purpose of being transplanted to the pit where it is to be water-rotted, and which, in that country, is more generally performed in stagnant than in running water. Dew-rotting is sometimes used in this country for both hemp and flax, but it is found to be more tedious and less even and regular in its effect than water-rotting, which always produces the least waste, and after being dressed, looks fairer, and is esteemed the strongest and most durable. The time required for rotting will depend much on the state of the weather: from the heat of the climate, in that country it will usually be effected much sooner than in these islands; but to know when this is done, it may be only necessary to take a handful out of the middle of the bundles, and try with a sudden jerk to break it, when, if it parts without much exertion, it is rotted enough, otherwise it must lie a little longer, and until it breaks with ease. It should then be taken out of the pit and dried as soon as possible, taking care at the same time to lift and remove it always by the bands, which should be of wheat straw, and the only part handled. The sheaves should be placed upright against each other, and in the manner of wheat shocks, till the pit is emptied, when beginning with those first taken out, they should be unbound and carefully spread open, until they are got thoroughly dry, when they should be again bound up, and removed to the hemp mill or break, for manufacturing. It is particularly necessary to be careful in handling the rotted hemp whilst wet, as the lint is apt to chafe and peel off in that state, to the injury of the quantity and quality of the sample, but when dry it may be handled with safety.

After gathering the seed of the female hemp, it undergoes the same process; but when seed is the main object, it ought to be sown earlier, and cultivated apart from the other crop; and instead of two bushels, *one peck of hemp* will be found quite sufficient seed for an acre. The plant being thin upon the ground, will branch out, grow stronger, and produce a better and more valuable sample, than when the hemp is cultivated for the purpose of manufacture only. When the male hemp has shed its farina on the blossoms of the female hemp, and by which its seed becomes fecundated, the leaves of the carle, or male hemp, fall off, and the stem growing yellow, is easily removed without injury to the female, which now begins to branch out, to look of a deeper green colour, until the seeds begin to ripen, and which is easily perceived by their falling out of their sockets; when the best way to gather the seed which first ripens, and which is always found to be the prime of the crop, is to bind the plants down, and shake them upon a long narrow sheet or cloth spread along the furrows and under the plants for that purpose; and this may be repeated with ease (when the culture is merely for the quantity of seed annually wanted) every three or four days, until all the seed is ripe and thus saved. In the interim, it is necessary that much care should be taken to keep off birds of every description, as they are all, more or less, very fond of feeding on the seed.

The great object in preparing both hemp and flax for the manufacture of cloth, is to render them both as soft and as fine as possible without lessening their strength, and the easiest and cheapest way of so doing is certainly the best. That practised by the housekeepers in the interior of America is as follow: the bottom of a large 18 or 20 gallon kettle is covered with lye, of about one half the strength which is commonly used by them for making soap; over the lye sticks are placed, upon which the hands of the hemp, from the brake or swingle, are placed in layers crosswise of each other, till the vessel is completely filled: it is then covered closely down, and placed over a slow fire to simmer for four or five hours, by which time the steam will have penetrated the middle of every hand; when they are taken out, wrung as dry as possible, and spread upon a floor or loft till quite dry, when it is repacked into some close dry place for use. Exposure to the wind and air, particularly in the warm and humid climate of the Ohio, is found to weaken and rot the fibre of both hemp and flax. Previous to the hatcheling of the hemp, it should be twisted as hard as possible into hands, and well beetled on a smooth stone, with a smooth round hard beetle, turning it round from side to side, until the whole is very well bruised, which prepares the next operation of hatcheling, when two different qualities of tow are produced, and the hemp itself makes excellent linen.

The coarser kind of tow is spun into a corresponding yarn, and wove into sack and bagging stuff. The second quality is spun into a better sort of yarn, and when mixed with the woollen yarn produced and spun in the country, makes a very good linsey woolsey for clothing the negroes, and the pure hemp web of this quality for their shirting. Such other parts of the hemp as may not be manufactured into grey linens for home use, shirting, sheeting, &c. and which in Kentuckey are of a most excellent strength and quality, or may not be converted into cordage, of which, at Lexington in Kentuckey, and in many other parts of the western country, considerable factories have lately been established, as well as for manufacturing duck or sail-cloth, is sent down in bulk in the large flat-bottomed boats, with flour and the other produce of the country, to New Orleans.

Hemp-mills are becoming very common in Kentuckey and through the Ohio country: they are commonly worked with two or more horses. They are a good deal on the principle of the common oil-mill used for grinding rape or coleseed, with this difference, that the filloc or extremity of the verticle or grinding wheel, is notched or grooved in such a manner as to correspond with certain indentures made in the floor upon which the wheel traverses. Here the hemp is laid lengthwise, and it is astonishing how much this milling facilitates the subsequent operations of preparing it in bulk for the market at New Orleans.

The whole of these great national improvements, for reasons which cannot but be obvious to every one, should be consigned to the care and direction of the Honourable Board of Agriculture. The nobility and gentry, active members of this Honourable Institution, distributed through these united kingdoms, have already distinguished themselves for their knowledge in the pursuit of rural improvements; and it is to such persons, already possessing a great and important stake in the empire, and steadily attached to the constitution and present order of things, that a trust of such concern can with propriety be delegated. They should be empowered to employ proper persons for carrying all their well digested views into execution, and who should regularly transmit their proceedings, forming the ground-work of an annual report by the Honourable Board, to His Majesty, and consequently to the Parliament of these kingdoms.

As it will probably be expected that the Surveyor should say a few words on the motives by which he has been influenced in proceeding so far in the discussion, he conceives that the necessity for appropriating the first class of the wastes and forests in the manner above stated, is so self evident a case, that nothing can be required to enforce the belief of its propriety, its sole object being decidedly directed to the public good.

The appropriation of the forests, somewhat in the manner here suggested, would not only tend to a considerable increase in the national population, but at the same time be the means of producing a number of additional useful hands for agricultural employment, by gradually cutting up and annihilating that nest and conservatory of sloth, idleness and misery, which is uniformly to be witnessed in the vicinity of all commons, waste lands, and forests, throughout the kingdom. Was the condition of these people in the smallest degree ameliorated by the little property in a horse or cow which they may eventually become the owners of, far, very far indeed, would it be from the intention of the Surveyor to recommend any measure, that in its consequence might tend to abridge them of such prospective advantages; but in viewing their habitations, the appearance of themselves and families, to say nothing of their morals, in comparison with what is daily to be witnessed in the family and appearance of the steady day-labourer in other parts of the country (that afford none of the advantages ascribed to the situation of the forester, or the equally wretched inhabitant of an extensive common), is quite sufficient to justify the Surveyor in an earnest wish, that old as he now is, he yet may live to see the day when every species of intercommonable and forest rights may either be extinguished,

guished, or in a progressive state of forwardness to be abolished and utterly done away.

The incalculable mischief at present done by the trespass of the deer in the cultivated enclosures binding upon and near the forests, is an evil that ought not to be sanctioned by any authority whatsoever.

Wool.—This is one of the most important articles in the whole catalogue of rural economics, and is therefore entitled to every consideration the knowledge and experience of the Surveyor will enable him to bestow upon it.

The improvement first made by the justly celebrated Bakewell, in the form and carcass of sheep, shows, that however specific varieties may possess their excellencies, by the blending and mixing with just discernment the different families together, a new variety may be obtained, and which in appropriate situations are still to be desired as the most valuable of their species. These sheep, however, must be fed upon a carpet, have a sound layer, and never be subjected to hardships in the fold, or in searching wide for their food: these advantages secured, no animal whatever of the kind will in a given space of time, and on a given quantity of food, lay on so much meat as the New Leicester.

As improvements have been thus made by combining with each other the physical distinctions of form and carcass, attempts are now making, and which originated in the beneficent views of our most gracious Sovereign, for improving the fleece of this animal.

That all the variety of family which we perceive in sheep inhabiting the different parts of this globe, are originally to be referred to the effects of physical causes; and that such distinctions in the form and clothing of these animals have been produced by climate, and the unvaried habits of the animal for an innumerable lapse of years, there can be no question. As such, these differences may as fairly be said to have entered into the constitution of the animal, as had it been so created and ordained on the first unfolding of animated nature: still the variety has been produced by natural subsequent causes, operating without intermission on the original constitution and structure of the animal; and so far as we are capable of judging from analogy, it may with proper management be expected to be continued for a considerable length of years.

The offspring of negro parents in America, a race of men *by no means indigenous to that country*, are equally black, with the same exterior character which their ancestors possessed some generations ago. Cross the negro with the white blood, and a new variety is produced, and which gradually again terminates, as the negro or European blood in the parent character may preponderate, and impress the offspring.

The soil and climate of every region upon earth, undisturbed by man, produces its specific plants and animals, together with their ordinary qualities and uncontrouled propensities: the native wanderings of the Spanish and eastern flocks, most probably first suggested to the early shepherds, or those patriarchs who first discovered an interest in protecting, and in some measure domesticating these animals, that their own unrestrained instincts were the best rule for their well doing.

A superabundance of food at one time, and a scarcity of it at another, were what the native instincts of these animals taught them to avoid, and thus the same economy may be brought home to our observation every day; for in proportion as this obtains, the constitution of the sheep is affected, and a material injury accrues in the growth of its wool. Sudden transitions also from heat to cold, alternately, promote and obstruct perspiration, and materially retards the regular growth of the wool; for on examining the fleece of a sheep that has been exposed to the change of a close enclosure at one period, and turned out upon an open down or heath at another period of the same season, or to changes from high keeping at one time of the year, and to great abstinence and hunger at the other, these circumstances will all alternately appear in the growth of the wool, which will be found formed of irregular shoots, and equally destitute of uniform fineness and strength. It is therefore from a regular temperature of climate, and an evenness to be preserved in the flesh or condition of the animal, that the staple or pile of wool in the fleece of a sheep can be brought to the highest perfection. Hence, to an equal and regular supply of food, and to a uniformity in the temperature of the climate, which the regular changes of situation affords to the flocks of Spain throughout the year, that the great superiority of the Spanish over other European wool is chiefly to be ascribed.

To avoid as far as possible the excessive heat, as well as the exuberance of herbage of the vallies during the summer season, these flocks are always found to depasture at that season over the highest parts of the country: on the approach of winter they descend towards the vallies, but in both seasons are found to work equally hard for a bellyful. The same indeed may be said of the sheep and wool of Arabia and Tartary, the flocks of which countries follow the sun, and go round in the same temperature of climate in pursuit of the same food, and always subject to the same toil in procuring it upon a similar pasturage.

The sheep also of Cochin China and Thibet, annually perform through vast regions their accustomed round, thus keeping through the year in the same medium as to heat, and are thus preserved in the same evenness of condition. Their wool, particularly that of the sheep of Thibet, has at length improved to nearly an equal degree of fineness with the fur of the beaver, or the single threads produced by the silk worms, and (as before observed) which are afterwards wound together for making the finest raw silk. This wool, for time immemorial, has been much in demand at Cassimere, where it is manufactured into the celebrated India shawls, and other woollen goods of extraordinary fineness and value, and which are held in such high estimation through Japan and the Chinese empire, as to render them in a manner unknown in Europe.

This short sketch of the nature of wool, how its growth may be affected by the condition of the animal, and the changes in the surrounding medium in which it may be kept, being duly considered; it would follow in the first place, that by paying due attention to the native habits of the Spanish sheep, the genuine Merina wool may be cultivated and preserved in all its excellencies in this country, to an almost endless period of time. But the frame of the animal is objected to, and must be improved by crossing it with a variety which is most likely to cure those defects, and which approximates nearest to the character of the Merina: this may be done, and a new variety produced, with the Ryland, the South Down, or any other of the native sheep of this country; but on the principle above stated as applicable to the human species, the same consequences will ever accompany a predominance of the English or Spanish blood in the future interunion and propagation of these animals.

The Merina is a sheep, which from the closeness of its fleece seems capable of enduring very considerable hardships, as to the driving rains and the wet layer, to which it is feared it may be but too frequently exposed, through the neglect of proper draining in many parts of this country. Its form fits it for activity and for ranging to a considerable distance in quest of food, and there is no apparent impediment against its bearing the hardships of the fold equally well with the Norfolk, South Down, Wiltshire, or any of the most hardy breeds in this kingdom. Give it, however, but fair play, and the goodness of its constitution and excellence of its fleece will be preserved, and prove a most valuable and permanent acquisition to the manufacturing interests of this country.

A fine tract of water-meadow might be made above and round the pond at Alresford, were the head of the mill-dam lowered about eighteen inches, and which, by bringing up a level to the mill-tail below, additional fall might be obtained, and no possible injury sustained to the mill-seats between thence and Winchester. Many of the water-meadows in this neighbourhood rent as high as five guineas per acre, and it is therefore no small matter which is thus thrown out for consideration, but which naturally leads to a farther enquiry on this subject, and the relative value of water-mills, with appropriating such water to the purpose of irrigation.

Before the value of this improvement was known, it is not at all surprising that a regular and uniform power of working mill machinery by water, should be preferred to the more irregular and hazardous one produced by wind. In many parts of the kingdom, however, no water-mills are to be seen for a great extent around, and such too are often thickly inhabited, and chiefly corn countries; yet no complaints are heard of in the want of convenient opportunities for grist grinding, or manufacturing of flour upon a larger scale. Should wind, however, be finally rejected as a suitable power for merchant flour-mills, the improvements which of late years have taken place in steam-engines, would readily supply all that may be wanted as a substitute; and which in all situations, but in the maritime counties, and through which navigable canals proceed, may be supplied with fuel at a very reasonable expense, say from 10*d.* to 2*s.* per cwt.; rating, however, this article, on a general average, at 18*d.* per cwt., and seeing that such a quantity of coal would be equal to the working of a seven-horse power four hours, it is certainly not in comparison with the extent of ground occupied as mill-races, the injury produced in the surrounding country by standing heads of water, and above all, the extensive appropriation of such water to the purpose of grinding corn, rather than that of irrigating, and rendering so much more valuable and productive to individuals and the community at large, the low grounds, to which at this time such races and mill-ponds are so great a nuisance.

Canals—Are perhaps more ornamental to a country through which they pass than are iron-rail roads. These latter, however, afford all the facility of receiving foreign supplies, and for transporting the produce of the country to market as the former; they are constructed in one-tenth part of the time required for opening a canal; and can at no time be rendered useless through the want of a medium to effect their purpose with, and which a dry spell of weather often produces in the inland navigation. These roads do no injury to the estates through which they pass, by leakage, or to those at a greater distance, by holding up the water to a source, which, however difficult to trace, has frequently been known to produce mischief, and such as were never known until certain levels of canals were formed above the conducting strata of the country. The diversion of such waters from the use of irrigation, forms another objection to canals, and that of no small consequence in comparison with their more valuable substitute.

Whenever the lay of a country may be such as not to admit of a general inclination of plane for some distance, without diverging too far into a country not likely to be much benefited by an improvement of that nature, or supply business towards the support of such road, such lines and distances as on examination may prove the most eligible for the course of the road through a hilly or broken country, may readily be continued by the assistance of double inclined planes, and thus on the principle of canal locks, different sections of the road may be made practicable with a comparative small expense in the outset, upon establishing so great a convenience.

New Turnpike Road.—A considerable benefit would accrue to the public at large, as well as the country through which it would pass, was a turnpike-road carried through the valley of Bramdean, from Petersfield to Winchester. This distance does not exceed twenty miles, but the inconvenience the country generally labours under from the want of a good road through this quarter, particularly at the times of Wey-hill and Magdalen-hill fair, is such as to demand an early attention to this circumstance, the accomplishing of which would be in nowise difficult, as very good materials are to be found along the whole line of the proposed road, and which in many places would require but little labour to make itself.

Wheel Carriages.—One thing seems indispensably required for the public accommodation, but this is only to be obtained by legislative authority; it is that of fixing upon one standard width for the track of all waggons, carts, and pleasurable carriages; and to ordain, that all wheel carriages, wheresoever made in the island of Great Britain, whether designed for business or pleasure, after a certain time should be made and constructed agreeably thereto. The Surveyor knows nothing that would more essentially contribute to the safety and comfort of travelling, as well as to the preservation of cross and parish roads in general, than a regulation of this nature, strictly and rigorously enforced throughout the kingdom. The width of the track the Surveyor would presume to suggest for all wheel carriages whatsoever, is five feet eight inches from the centre of the strike or felloe of one wheel to that of the other. The wheels of pleasurable carriages moving at that width, would render such machines infinitely more safe and commodious than they are at present, and at the same time very ample room would be afforded between the wheels for the body of a cart, tumbril, or waggon.

The Poor.—It was observed in the Survey of Devon, that advantages arose to the peasantry of the country, from the indulgence which many noblemen and gentlemen extended to them by encouragement to settle upon the borders of the wastes. This however must not be admitted without some qualification; labourers detached from villages, certainly spend their time not actually engaged in their employer's service, much better to themselves, their families, and the public at large, than when such are grouped together in gossips in the country villages. On the sides of the wastes and commons they become in a manner independent of the farmers and many of the country gentlemen; and it is not without much difficulty that, under such circumstances, the ordinary labour of the country is performed. Cottages however still detached from villages, but appurtenant to farms, is the plan of all others, from what has been already observed, and in what will follow, exemplified by the management of the poor, and in the case of cottages in the Isle of Wight.

The hovels on the sides of wastes and commons, are usually built with mud; the roof and other materials are as commonly purloined from the adjacent woods, or any other place that will most conveniently supply it. The establishment is thus began by plunder, and continued without controul the seat of an idle, useless, and disorderly set of people. To contrast, in some measure, abuses of such a nature, it may not be amiss to state the following observations made by the Rev. Mr. Warner, in his General View of the Agriculture of the Isle of Wight, and which having been so fully confirmed by the Surveyor in his progress through that island, it would be unjust to exhibit them in any other way than in the language of the reverend and worthy Author himself.

"A few years back, great abuses having been experienced in the management of the poor in the different parishes in the island, the gentlemen determined to adopt some mode of remedying the evil; and accordingly in 1770, a general meeting of the respectable inhabitants was held, in which it was proposed that an Act of Parliament should be procured, to consolidate the poor-rates of the several parishes, and to erect a house of industry for the general reception of the paupers.

"The proposal being agreed to, a bill was accordingly obtained, and a large building erected on part of the forest of Parkhurst, eighty acres of which were granted by Parliament for this purpose.

"The plan of this extensive edifice is extremely good, having every convenience that can tend to render its inhabitants healthy, useful, and industrious. It is capable of containing seven hundred people, though there are seldom upwards of five hundred resident paupers, two-thirds of whom are constantly employed in manufacturing sacks for corn, flour, and biscuit, and kerseys, stockings, &c. for the use of the inhabitants of the house. The profits of these operations are applied to the support of the establishment, the payment of the interest due on the money borrowed for carrying it into execution, and the gradual discharge of the principal.

"The Act of Parliament indeed provided, that for the first 20 years after the completion of the plan, half the profits arising from the labours of the poor, should be applied to the reduction of the poor's-rates, and half to the payment of the sum borrowed. It being however

ever found, that the reduction thus made in the former was but inconsiderable, it was thought prudent to apply the whole to the latter purpose, which has been the case for some few years last past. This measure, notwithstanding, as may be supposed, has given disgust to several who are not disposed to endure a present trifling inconvenience for an eventual permanent good, and they talk loudly of compelling, by a suit in Chancery, an adherence to the letter of the Act of Parliament."

Wherever any thing of this nature has been taken up by the gentlemen of the country, it has seldom failed of success; not only as to a reduction of the poor's-rate, but has also added to the comfort of the poor themselves. Many instances may be adduced in support of this, but the hundred house for Cosford, in Suffolk, is a sufficient example. If such, however, were generally established, and proper attention paid to them by the most active and respectable inhabitants of the district, there can be no doubt but great advantages would result to the community from such institutions*.

"The rates throughout the island were not equalized at the time of their consolidation; but that each parish might pay its fair proportion to the new establishment, an account was taken of the amount of their poor-rates respectively for the seven years preceding; and an average being struck, this was determined to be the rates of their future payments, till reductions should be made from the profits of the house. Hence it is that we find the rates vary considerably in different parts of the island. Thus, for instance, Brading pays 3*s*. 3*d*. in the pound upon two-thirds of the rent;

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* Annotator.

Whitwell 2*s*. in the pound on the rack-rent; and Freshwater not more than 15*d*.

"Every praise is due to the gentlemen of the island, for their attention to the regulation of this great establishment, which, at the same time that it exemplifies the possibility, points out the mode of rendering the most unhappy and useless part of the community serviceable to their country, and comfortable in themselves.

"It is a source of great pleasure to the feeling and reflecting mind, to observe a general appearance of content and decency among the labouring poor of the island, a description of people who in other parts are too often overwhelmed with want and wretchedness.

"This their comfortable state, they chiefly owe to the occasional kindness of the farmers, who bear the character of humane and generous masters, and their living in a great measure upon potatoes, a wholesome and nourishing food, and plentiful with them, as every labourer's family has a plantation annexed to his dwelling, stocked with this useful root. Indeed, without these assistances, they would be scarcely able to exist, as the rate of wages is but low in the island, provision dear, and the rent of cottages rather extravagant, being from 40*s*. to 55*s*. per acre. They are indeed neat little dwellings, built with stone, each having a garden for the accommodation of the tenants."

To every word of this statement so far, does the Surveyor most cordially subscribe; but where the worthy Divine, in the sequel, speaks of illuminating the peasant mind, by teaching the husbandmen to d and write, that they may be rendered more con-d in their situations, make better neighbours, and prove more valuable members to the community at large; these are opinions in which, from the considerations already stated by the Surveyor on this head in the Devonshire Report, he must, however reluctantly, most decidedly disagree.

The governor of the house of industry at Newport is of opinion, that the feeding and clothing of the poor, amounts to about 4*s*. per head weekly. The contract price of the supplies for this establishment, with a particular detail of its whole economy, has been promised by the governor to be sent to the Surveyor, but which has not yet come to hand.

Having adverted as fully as the nature of this Report will admit of, to most of the leading objects which formed the purpose of the Survey, it now remains necessary to collect the whole under the following heads.

The first will comprehend all those obstacles to the general improvement of the country, which the efforts of the individual, the co-operation of neighbours, or the union and agreement between landlord and tenant, may entirely remove, or in a great measure remedy. They are divided, as they have occurred as applicable to this county, into separate propositions, as follow:

To guard against the exhaustion of dung-hills, by preventing the rain from washing out, and the running to waste of its most valuable liquor, whether in the yard or exposed along the hedge-rows; to bed, in such situations as will admit of it, the farm-yards with sea-weed or peat-mould, not only for the purpose of soaking up the surplus moisture of such yards, but that the urine and drainage of all such places proves the most powerful solvent of any yet discovered for operating upon such substances, and reducing them to a state of mucilage and direct manure.

To be careful in the application of manure, and to be well satisfied in the propriety of ploughing it under, rather than to use it as a top-dressing.

To discontinue the practice of paring and burning the light downy lands, and in no case to pursue that practice but for the destruction of the coarse unprofitable rubbish occupying all old peaty moors and commons.

To apply sand, or any siliceous matter, in large quantities, to strong tough clay, or not at all.

To expose chalk marl clay for some time to the joint action of the frost, sun, and air, rather than to attempt an immediate union of them with the soil, by ploughing them under.

To swerve from the customary practice of performing the whole day's work at plough or harrow in one journey of seven and an half or eight hours, and in its place to divide the day into two journies of four and an half or five hours each.

To form a general concert among the occupiers of the country, for enforcing the due attendance of the workmen at the stated legal hours, viz. from six to six in the summer, and from light to dark in the winter season, allowing half an hour for breakfast, and an hour for dinner each day.

To lose no opportunity in cultivating green food for horses and cattle, and to keep the former in the yard or stable throughout the year.

To make a liberal use of the scarifier, nine-share, or horse-hoes, for pulverizing the turnip ground for barley and for cleaning the fallows, and not to plough so frequently, but occasionally to plough much deeper than what is generally done.

To have the fallows that are laid up for spring corn, as carefully well gripped and water-furrowed as if a crop of wheat was in the ground.

To sow particularly early with winter or spring corn, all those light and hollow bottomed lands which from a superabundance of straw become obnoxious to the blight or mildew, and generally to sow both white and green crops much earlier than what is at present done; at all events, whenever possible, to have the wheat sowing completed, particularly on the cold clay loams, before the end of October, for unless a sufficient plant is established in the ground before the dead months of November, December, and January, forlorn indeed will be the prospect of a crop of wheat from such lands.

To be careful in seeding the ground, and to guard against over covering as well as not sufficiently securing the seed of white straw crops; to be particularly mindful that the seed of the brown straw crops are generally put to a greater depth in the ground.

To relieve the wet gravelly sandy loams of their surplus water by hollow or open drains, and to cultivate them occasionally with turnips, according to the Scotch two-furrow or ridge practice. To leave the field well water-furrowed, and with the aid of sledges to get the crop completely from off the ground before Christmas.

In the operation of ploughing, to be particularly careful in cutting the bottom of the furrow clean, even, and of an uniform depth. To bury every weed, by whelming the slice or furrow completely over, and to guard as much as possible against unnecessary drought, by forming and exposing a fresh surface too frequently in preparing for turnips.

To pursue the drill husbandry in all cases where circumstances will admit, in preference to the broad-cast, but upon all occasions to abstain as much as possible from sowing wheat after the middle of November.

To forbear using the horse-hoe amongst corn, unless the intervals are of an extraordinary width, to hand-hoe with particular caution; and rather, amongst white straw crops, to depend upon the weed hook than the hoe, for the destruction of thistles.

To discontinue the practice of boarding the harvest men, and to put out to them the reaping, binding, and mowing of the harvest.

To cut wheat with some sap in the straw rather than suffer it to be full ripe before it is reaped: by the former practice the sample will be much improved, the head corn will be saved from shedding, and by giving it plenty of field room, it will leave the straw as freely, and be thrashed with as much ease, as if it were dead ripe before it was shorn. By the latter practice a great deal of prime wheat is shelled out in harvesting, and the sample is unquestionably left of a very inferior quality.

To avoid thrashing wheat upon a clay or brick floor, not only from their want of elasticity, but from an injurious damp that will be contracted by the grain, reducing its weight and essential value from two and a half to five per cent.; but on all occasions to resort to thrashing-mills when their first cost, exclusive of rough timber, does not exceed forty or fifty guineas.

To subject cows to occasional bleeding upon change of food, or when about one-third gone with calf; and among the suckling herds, when the milk gets so rich as to produce symptoms of scouring or of surfeit in the calf, to thin it by feeding the cow with grains, and *vice versa*, to thicken and enrich the milk, by giving the cow a proportionate quantity of malt combs.

To weigh with equal candour and judgment the proven excellencies in the several breeds of hogs, sheep, cows, and horses, as on due consideration appears best adapted to the soil, the herbage, and appropriation of the land, and to stock with such accordingly.

To relieve the wet heavy woodlands of their surplus water, and to keep them properly fenced and secured against the access of cattle.

After hollow-draining the coarse strong pastures, to open them to the meliorating effects of tillage, but on no account to take more than two or three white straw crops during a period of five or six years, which it may be advisable to them to lay open to the sweetening effects of the plough, when, if not too stubborn, they should be again laid down for pasture or feeding land.

To form ponds for the sheep and cattle, as well as tanks or reservoirs of rain water for supplying the inhabitants of the chalk districts, and those parts of the country which in dry seasons are under inconvenience through the want of springs, or a wholesome supply of water.

To resist the monopoly of farms, or the consolidation of them beyond a certain extent, say 300*l*. per annum heavy land, 500*l*. per annum light land.

To encourage the establishment of box clubs through every parish, and upon every occasion to stigmatize as ignominious, every sturdy labourer who shall receive assistance from the parish, when he might have been relieved as a member of so laudable an institution.

To effect the purposes contained in the following propositions,

positions, would certainly contribute very much to excite a general spirit of improvement throughout the country, and prove the basis of its more perfect and general cultivation; but as this depends entirely on the will of the Legislature, it is impossible to say how long they may continue to withhold their authority and consent.

To encourage as far as possible by legislative regulations, the laying into severalty, and enclosing where necessary, all common-field, common meadows, and commons; and upon all occasions by a land commutation, to discharge all such lands from the farther payment of tithes.

To subject the greater part of all the wastes, chases, and forests, at present appurtenant to the Crown, to improvement, by throwing them open to the skill, capital, and industry of the nation.

To limit the power which the assessors have at this time to value improvements of seven years standing, by which the tenant is subjected to the payment of not only his own tax of 2*d*. in the pound, but also of ten per cent. upon the capital estate he is thus supposed to have created.

To put the occupiers of the country, generally, upon a more certain footing as to the payment of tithes.

To subject personal as well as property in lands and houses, to be proportionally assessed to the parish rates.

To make such arrangements in the management of the poor, as may have a tendency to check the further increase in the poor's-rates. The house of industry in the Isle of Wight, and the general condition of the poor throughout that Island, shew the practicability of such a measure.

To restrain from carrying on during hay-time and harvest, all such public, civil, and military works, as are not immediately connected with the safety and welfare of the nation.

To empower the commissioners of sewers to lower the mill-dams and the staunches of head-water kept up for fish ponds, navigable rivers and canals; and further to make such regulations in these matters, as may effectually conserve the same without injury to the lands through which such streams may necessarily pass.

The apparently incurable evils, but which with due attention may be much mitigated in their effects, under which the further agricultural improvement of the country labours, are,

The want of a constant supply of wholesome water in the chalk district, in parts of Portsea and Haling Island, and in some other of the marsh lands embanked from the sea.

The absence of clay, chalk, or marl, in the vicinity of the greater parts of the light gravelly heaths and commons, as well as such other anciently enclosed lands, and also the want of clay, chalk, marl, silecious or argillaceous gravel, within reach of the tough, strong, and compact clays: and lastly,

To the blights and mildews may be added the insects that prey upon the roots, tender leaves, blossoms, and seeds of corn and grasses, as well as evils proceeding from the like causes, which prove so injurious to the growth of oak and other valuable timber.

The Surveyor closes this Report, with a wish to express in the fullest manner, his very best acknowledgments to the many Gentlemen, Farmers, and Yeomanry, in the county, with whom he had an opportunity of conversing, in the course of his journey, who not only in the most handsome and liberal manner, afforded and procured for him all the assistance and information in their power, but many of them received and treated him with much attention, politeness, and hospitality.

APPENDIX.

LETTER FROM THE REV. MR. RIVETT TO MR. CHARLES VANCOUVER.

Milford, near Lymington, Feb. 9, 1808.

SIR,

I HAVE, as you desired, looked over the list of Queries contained in the plan for Agricultural Reports, and do not think I have information worth your notice on any subject, but the conduct of my own small farm, and that I will endeavour to detail to you as plainly as I can. My general system (from which I occasionally deviate, but as seldom as possible) is as follows:

Before Christmas I plough in the stubble of any arable crop, or lay ground, deep and clean, and furrow and water-furrow the fields as carefully as if sown with wheat. In the spring, as soon as it is dry enough, I tear the land to pieces with a *very heavy* scarifier drawn by six horses, working deeper than the plough; the roller and fixed harrow follow immediately, and the ground soon becomes fine, and stirred *thoroughly* to a great depth. The heavy scarifier we usually work longways, crossways, cornerways, and manage about four acres a day. We then mark it at three feet, open, shallow furrows, with the double mould-board plough at that distance; bring on about thirty, one-horse cart-loads of long dung to each acre; spread it in the furrows, and on it set about twelve bushels of potatoes; cover them as lightly as we can with a bout of the plough, and if required, run a light roller over the ground. We now let it alone till the plants are up, and then scuffle and scarify, to kill surface weeds. In about a week we scarify the intervals *deep*, and if the ground breaks up in large pieces, roll it with a fourteen inch wide three-wheeled cart, which takes three furrows, and which by loading or unloading, I can make as heavy or light as I please, and earth up the plants with the double plough a *little*. In about a fortnight or three weeks we again scarify the intervals *deep*, and earth up the plants *well:* any weeds near them are taken out by the hoe or the hand.—Rarely any thing more is required, but if weeds do appear, we attack them by hands or implements till totally subdued. By these various operations the ground becomes beautifully clean, and the soil, naturally strong and heavy, as finely pulverized as a garden border. In the beginning of October, when the haulm parts readily from the bulbs, I have it pulled up by hand, and laid down regularly in the furrows—split the ridges with a strong double mould-board plough, which unearths the potatoes very well, and forms at the same time a new ridge, on which is immediately drilled two rows of wheat, nine inches apart. As soon as the ground is dry enough in spring, I have the ridge thoroughly worked with the fixed harrow, and the furrows well scarified, and if lumpy, rolled with my cart-roller, and then thrown up to the ridges by the double plough.—Between this time and harvest, if any weeds appear, I have them taken out by the hand or the hoe. Over a space of nearly 40 acres treated in this manner last year, the crop was *very particularly clean*, and the average produce between seven and eight sacks per acre: tithe taken in kind. Of my crop now in the ground, all my potatoe land is sown with wheat, and was managed as above described, and is at this time looking very well. Four and thirty acres of the land that was wheat last harvest after potatoes, are again in wheat without manure, looking at present very well. For this second crop of wheat the ground has been treated as follows: (I must premise that the straw is reaped almost as near the ground as if cut with the scythe, and you are to recollect that the stubbles are clear of weeds and trumpery). I begin with scarifying the furrows at least six inches deep, then with our common plough turn the little stubble that is on the ridge into the furrow, which now becomes ridge; we then scarify this new furrow deep and thoroughly, and if lumpy, roll it. Then we apply a strong double mould-board plough, set wide, which lifts this loose and new mould to the top of the ridge; we then flatten the ridge with a light roller, and drill the wheat upon it at nine inches. We again strike the furrows with the double plough, and cut out our water-trenches deep, that is, at least three inches deeper than the furrows. At this time (second week in February) I can only say the corn looks strong and healthy, and you may depend on a true statement of it till and at harvest. You may be assured I shall spare no labour in keeping this crop clean and well pulverized, and if any of it seems to flinch, I shall try to recover it by eighteen or twenty bushels of soot to the acre. Should this crop answer, I mean to continue the system till my average crops are worse than those of my broad-cast neighbours, and perhaps that period may be at some distance, for it seems to me by the plan I am pursuing, the ground is thoroughly stirred to a great depth, thoroughly pulverized, entirely free from weeds, and has only one-fourth part of its surface occupied by the crop. The soil is naturally a strongish, deepish, moistish loam; the understratum sometimes marl, but more generally gravel. In all my various operations, I use the implements made by Mr. Cook, of Red Lion-square, London, and find them excellent tools in the mode of farming I pursue.

Being within an easy distance of a town, I purchase all the good straw manure I can meet with, and being near a wharf, and not far from Portsmouth, have generally a good market for potatoes. Should they not however fetch 45*s*. per ton, I steam a great many for pigs, and find they will pay rather more than 4*s*. a bag (280lb.), pork selling at 12*s*. a score.

I always tie my wheat in single bands. I have neither waggon or tumbril upon my farm, and do my whole work with single, light, one-horse carts, which I have now used more than four years, and am convinced (and so are my men) of their great superiority in every sort and kind of farming business.

Not recollecting any thing more in my own, at all different from the practice of others, I will not further intrude, than to subscribe myself,

Yours obediently,

THOMAS RIVETT.

N.B. I have these last five years sown all my wheat without liming, pickling, or any preparation whatever, and have not had any more smut than my neighbours, who universally lime and brine; I am of course very careful of obtaining a plump fine seed.

THE END.

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